

NAVAL HEALTH RESEARCH CENTER

***PRE-ENLISTMENT MALTREATMENT HISTORIES
OF U.S. NAVY BASIC TRAINEES:
PREVELANCE RATES FOR THE 2ND QUARTER OF 1994
AND 4TH QUARTER OF 1996***

*L. L. Merrill
C. E. Newell
L. K. Hervig
S. Booth-Kewley
L. A. Patriarca
P. A. Gilman*

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NAVAL HEALTH RESEARCH CENTER
P. O. BOX 85122
SAN DIEGO, CALIFORNIA 92186 - 5122

NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND
BETHESDA, MARYLAND



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of
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Lex L. Merrill
Carol E. Newell
Linda K. Hervig
Stephanie Booth-Kewley
Laura A. Patriarca
Patricia A. Gilman

Naval Health Research Center
P. O. Box 85122
San Diego, CA 92186-5122

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SUMMARY

Problem. Navy basic trainees may enter military service with histories of being victims or perpetrators of abusive behavior. Victims of abusive behavior often have recurrent identifiable negative somatic and psychological symptomatology that appears to have its etiology in past traumatic physical and/or sexual experiences. Perpetrators of abusive behaviors are at-risk of repeating their offenses, thereby creating more victims. Overall, abusive victimization histories have been shown to have a detrimental impact on general health, behavior, and interpersonal relations, which may affect job performance, attrition, and naval readiness. Base-rate data of U.S. Navy basic trainees' abusive histories are required to aid in clarifying the need for and the scope and specificity of intervention programs.

Objective. The primary goal of this study was to survey U.S. Navy basic trainees for their pre-enlistment histories of abusive behaviors. The main objective of this study was to compare the base rates found in the 4th quarter of 1994 with the rates found in the 2nd quarter of 1996 to determine the stability of reported behaviors. Base rates for premilitary maltreatment histories will aid in the development of future studies and treatment, prevention, and education programs.

Approach. In 1994 U.S. Navy basic trainees (women, $n = 1,891$; men, $n = 1,885$) at the Recruit Training Command (RTC), Orlando, Florida and in 1996 U.S. Navy basic trainees (women, $n = 920$; men, $n = 1,034$) at the RTC, Great Lakes, Illinois were administered a battery of instruments designed to collect histories of abusive behaviors. These instruments were used to ascertain trainee base rates for (1) the methods their parents used to resolve parent-child conflicts, (2) childhood sexual experiences, (3) the methods trainees and their intimate partners used to resolve conflicts, and (4) their experiences as victims and perpetrators of sexual aggression. Rates or frequencies were defined as the occurrence of at least one instance of a behavior. Additionally, data were collected concerning the trainees' experiences with alcohol. Prevalence rates for abusive behaviors among 1994 and 1996 trainees were compared. The same prevalence rates were contrasted with the rates for college and community samples.

Results. The 1994 and 1996 trainee samples were demographically similar. The main differences were that the 1996 trainees (1) were slightly younger (2) were less likely to be currently or have ever been married; (3) had a higher percentage of African-American women, Caucasian men, and Hispanics; and (4) had more participants from higher income families than the 1994 trainees. It should be noted, however, that although statistically significant demographic differences were found between the 1994 and 1996 samples of trainees, the effect sizes were small, and therefore it is unlikely that the demographic differences between the two samples are of practical significance.

Compared to the 1994 sample, the 1996 sample reported a lower percentage of parental divorce, a stricter level of parental discipline, a larger percentage of witnessed parental violence, a higher rate of suicidal ideation, and somewhat lower rates of counseling (for males only), a higher age at first intercourse (for males only), and fewer different sexual partners.

The distribution, of the 1994 and 1996 samples, for childhood sexual abuse were significantly different for the female trainees but not for the males. The 1994 female trainees (31.3%) reported a slightly higher percentage of total contact sexual abuse than the 1996 female trainees (26.8%) but the difference was not significant. However, a significantly higher percentage of the 1996 female trainees (17.7%) compared to the 1994 female trainees (11.4%) reported experiencing childhood sexual abuse that involved sexual intercourse. Contact sexual abuse was reported by 12.7% of the 1994 and 10.6% of the 1996 male trainees.

An analysis of the childhood physical abuse rates for the 1994 female (41.4%) and male (39.1%) and 1996 female (39.2%) and male (36.8%) trainees found no significant difference between the two samples. The childhood physical abuse analyses focused on the rates found with the severe violence scales of the parent to child version of the Conflict Tactics Scale (CTS PC).

Focused analyses of the violence scale rates of the intimate partner version of the CTS (CTS IP) found no significant difference between the rates of inflicted violence between the 1994 (47.5%) and 1996 (44.0%) female trainees. A significantly higher percentage of the 1994 male trainees (34.8%), however, reported inflicting intimate partner violence compared to the 1996 male trainees (19.9%). A significantly higher percentage of both the 1994 female (41.0%) and male trainees (44.6%) reported sustaining intimate partner violence compared to the 1996 female (32.9%) and male trainees (36.1%).

A significantly higher percentage of the 1994 female trainees (24.0%) also reported being physically injured by an intimate partner compared to the 1996 female trainees (19.2%). No significant difference was found between the rate of intimate partner physical injury reported by the 1994 (9.3%) and 1996 (10.7%) male trainees.

A significantly higher percentage of 1994 female trainees (36.1%) reported being the victim of rape compared to the 1996 female trainees (26.0%). However, the attempted rape rate was similar for both the 1994 (7.7%) and 1996 (7.6%) female trainees. The percentage for "total rape" (which includes attempted and completed rape) was significantly higher for the 1994 female sample (43.8%) than for the 1996 female sample (33.6%). Effect sizes were small for both the rape and "total rape" comparisons.

No significant differences were found between the percentage of 1994 and 1996 male trainees who reported perpetrating attempted (3.5% and 2.9%) or completed (11.3% and 9.2%) rape. The percentage for "total rape," which includes attempted and completed rape, was not significantly different between the 1994 (14.8%) and 1996 (12.1%) male trainees.

For numerous methodological reasons the percentages of 1994 and 1996 trainees who scored in the alcoholic range on the Michigan Alcoholism Screening Test (MAST) were not statistically compared. However, the same percentage (33.4%) of the 1994 and 1996 female trainees scored in the alcoholic range on the MAST and 47.2% of the 1994 and 42.5% of the 1996 male trainees scored in the alcoholic range on the MAST. A significantly higher percentage of 1996 female (36.0%) and male (41.0%) trainees reported drinking to intoxication when they drink compared to the 1994 female (20.0%) and male (30%) trainees.

Conclusions. Demographic and maltreatment history prevalence rate differences were found between the 1994 and 1996 samples of trainees. Although statistically significant, the majority of the differences between the two samples are probably of little practical value as reflected in the small effect sizes that were found. The results of this study, however, provide partial support for the "seasonal effect" hypothesis or the idea that trainees with different maltreatment histories enlist at different times of the year.

Overall, the results of this study show that a relatively high number of both 1994 and 1996 basic trainees enter naval service with histories of (1) childhood physical abuse, (2) childhood sexual abuse, (3) adult physical and sexual victimization, (4) adult perpetration of physical and

sexual aggression, (5) and alcohol misuse. Previous studies have shown that victims of abusive behavior are at high risk of incurring somatic and/or psychological problems that require treatment by health-care professionals. Untreated, the effects of traumatization may interfere with training and the performance of duty. Without intervention, perpetrators of both sexual and physical aggression are at a high risk of repeating their behavior. The significant levels of alcohol use and misuse among trainees may be related to their histories of victimization and place the trainees at greater risk of adverse somatic and psychological consequences. Alcohol misuse has also been linked to the perpetration of aggressive behaviors, the vulnerability for victimization, and general negative behaviors.

The relatively high rates of basic trainees' histories of abusive behaviors suggest it may be cost-effective to establish treatment, education, and prevention programs at the basic training commands. The primary objective of these programs should be to allow for the earliest, optimal resolution of behaviors that may interfere with the performance of trainees' duties in the Navy. To ensure that trainees and other naval personnel receive an accurate diagnosis and treatment of their complaints, medical department personnel should be trained to detect and understand abusive behavior, its symptoms, and its effects on somatic and mental health. The high levels of sexual aggression show an urgent need for the establishment of intervention programs for the prevention of sexual assault revictimization, the perpetration of sexual assault, and the misuse of alcohol.

A longitudinal study is presently being conducted to determine the effect of maltreatment histories on the health and functioning of U.S. Navy personnel. The scientific literature suggests that personnel with histories of victimization and perpetration of abusive behaviors serving in the Navy require substantially more medical, psychological, and administrative services than personnel without such histories. The information gained from the longitudinal study will guide the creation of treatment and education programs for Navy personnel with maltreatment histories which may improve retention and reduce their hypothesized negative impact on the medical, psychological, and administrative systems.

INTRODUCTION

When Navy recruits report for basic training, they bring with them individual health care needs, shaped by previous experience, which can have far-reaching effects during their military careers. Abusive behavior suffered by trainees prior to their entry into the military is an experience that may negatively impact their health, well-being, and job performance, and could also have implications for the delivery of social and medical services (Brown & Anderson, 1991; Crawford & Fiedler, 1992; Merrill, Hervig, & Newell, 1995; Merrill, Hervig, & Milner, 1996; Merrill, Hervig, Milner, & Newell, 1996). In the area of job performance, Crawford and Fiedler (1992) have hypothesized and found some support for the idea that a significant number of basic trainees with histories of childhood abuse are less able to endure the stresses of basic training and are subsequently discharged for mental health reasons.

The results of a few studies indicate that a significant number of military veterans and active-duty personnel with somatic and/or psychological complaints have been victims of childhood abusive behavior (Bremner, Southwick, Johnson, Yehuda, & Charney, 1993; Brown & Anderson, 1991; Crawford & Fiedler, 1992; Raczek, 1992). Bremner et al. (1993) compared two groups of male combat veterans, one with a diagnosis of Post Traumatic Stress Disorder (PTSD; $n = 38$) and one with various somatic complaints ($n = 28$). Twenty-six percent ($n = 10$) of the PTSD group reported histories of childhood physical abuse while 7% ($n = 2$) of the comparison group reported such a history. In an investigation of 947 inpatients at a large military hospital, Brown and Anderson (1991) compared the childhood abusive histories of patients to their psychiatric medical histories. Eighteen percent ($n = 166$) of the sample, which included an unknown number of dependents, reported a history of childhood sexual and/or physical victimization. Twenty percent ($n = 188$) of the sample consisted of U.S. Air Force basic trainees, and 15% ($n = 28$) of the trainees reported being victimized as children. Brown and Anderson (1991) found comparatively high rates of alcohol and drug abuse, suicidality, and Axis II diagnoses (American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders, 1987) in patients with childhood maltreatment histories. U.S. Air Force basic trainees were examined by Crawford and Fiedler (1992) who compared 25 successful trainees to 25 trainees who were being discharged because of adverse psychological diagnoses. Only one of

the trainees from the successful group reported a history of childhood abuse while 40% ($n = 10$) of the group being discharged reported being a victim of childhood abuse. Another study compared personality profiles of 16 U.S. Navy men with histories of sexual and/or physical abuse with 34 nonabused U.S. Navy men, all of whom had been referred for psychiatric treatment (Raczek, 1992). This study found that the abused group had more avoidant and paranoid personality disorders. With the exception of the study by Crawford and Fiedler (1992), the data for all of these studies were collected from clinical populations and all of the investigators used in-house developed instruments to collect abusive history data. Overall, however, their general conclusions are similar to those of studies with community samples.

Rosen and Martin (1996) surveyed U.S. Army soldiers (265 females and 911 males) and found that 49% of the females and 15% of the males reported they had been sexually abused as children. Additionally, 48% of the females and 50% of the males reported histories of childhood physical abuse. These rates, however, may be comparatively inflated because of the methodology used by Rosen and Martin (1996). For example, to determine childhood sexual abuse rates, they asked about noncontact and contact sexual experiences "when you were a child," but did not operationally define childhood, did not use an age differential between victims and perpetrators, and used a vague screening question that may have been broadly interpreted by the participants. Similarly, to determine their childhood physical abuse rates they apparently did not operationally define childhood.

In 1994, a large sample ($N = 3,776$) of U.S. Navy basic trainees were surveyed to estimate base rates for pre-enlistment abusive experiences (Merrill, Hervig, and Newell, 1995). The results of this study indicated that 41.4% of the female and 39.1% of the male trainees were the victims of at least one incident of childhood physical abuse and 27.6% of the female trainees and 9.3% of the male trainees had experienced childhood contact sexual abuse. Forty-one percent of the women and 44.6% of the men indicated they had been physically abused by an intimate partner. In addition, 47.5% of the women and 34.8% of the men indicated they had physically abused an intimate partner. For the same sample, Merrill et al. (1995) reported that 45.5% of the female trainees had been the victim of at least one behavior that meets a legal definition of rape while 14.8% of the male trainees admitted to engaging in at least one behavior that meets

a legal definition of rape (includes both attempted and completed rape). Additionally, the MAST (Selzer, 1971) assessment of trainees' experiences with alcohol found that 63.5% of the women and 74.2% of the men scored in the "suggestive of alcoholism" or "alcoholic" range.

Taken together, it is reasonable to conclude from the preceding literature review that a significant number of basic trainees enter military service with histories of being victims and perpetrators of abusive behavior. Furthermore, convincing evidence shows that (1) victims of abusive behavior have recurrent identifiable negative somatic and psychological symptomatology that appear to have their etiology in past traumatic physical and/or sexual experiences; (2) perpetrators of abusive behaviors are at risk for repeating their offenses, thereby creating more victims; and (3) abusive histories have been shown to have a detrimental impact on general health and interpersonal relations, which may lead to poor job performance.

It has been suggested that the stresses of military life may result in an increase in abusive behaviors among military personnel (Jensen, Lewis, & Xenakia, 1986; Shupe, Stacy, & Hazlewood, 1987). To disentangle the effect of military life upon abusive behavior, however, maltreatment histories prior to entering military service must be collected and analyzed. A study that provided comprehensive profiles of U.S. Navy trainee histories of abusive behavior and the possible effects of such histories would allow for the development of treatment, education, and prevention programs to enable the optimal resolution of behaviors that may interfere with the performance of basic trainees' future duties.

A study is needed to determine the stability, over a one-year period of time, of the rates of pre-enlistment abusive histories among U.S. Navy recruits found by Merrill et al. (1995). Therefore, data will be collected from about 12,000 recruits from June 1996 through June 1997. The purpose of the present report is to provide a descriptive comparison of the data collected by Merrill et al. (1995) in 1994 with the data collected from June through September of 1996.

METHOD

Merrill (1993) outlined the approach used to develop the method for the data collected in 1994 and 1996. Briefly, an intensive literature search identified standardized instruments with acceptable psychometric characteristics that were appropriate for group administration and had a large normative database. The instruments were selected to assess U.S. Navy trainees' history

of physical and sexual victimization, experience or perpetration of sexual aggression, potential for physical child abuse, attitudes toward the opposite gender, and the psychological sequelae of their victimization. Consultants, experts in physical and sexual abuse research, reviewed the selected instruments for appropriateness for use with U.S. Navy basic trainees and recommended procedures for scoring and data analyses. For the reader's convenience, the methodology used in Merrill et al. (1995) and the results of the 1994 study is repeated in this report.

Participants

1994 Study: Participants were 1,891 female and 1,885 male Navy basic trainees at the Recruit Training Command (RTC), Orlando, Florida, who voluntarily completed the survey during January, February, March, and April of 1994. About 89.9% of the female trainees and 92.5% of the male trainees who entered basic training participated in the survey. Some trainees did not participate because they were participating in testing or other training.

Table 1 shows the demographic data for female and male trainees. The female trainees had a mean age of 20.4 years ($SD = 2.8$) with a range of 17 to 34 years and male trainees had a mean age of 20.2 years ($SD = 2.3$) with a range of 17 to 34 years. Most of the female (95.6%) and male (96.2%) trainees had a minimum of a high school education and 34.8% attended college. A relatively small percentage of the women (13.2%) and men (7.2%) were ever married. About 34.2% of the female trainees and 45% of the male trainees reported family incomes of more than \$35,000 per year. The majority of 1994 trainees were Caucasian, single, and high school graduates with a family income of more than \$30,000 per year.

1996 Study: Participants were 920 female and 1,034 male Navy basic trainees at the Recruit Training Command, Great Lakes, Illinois, who voluntarily completed the survey during June through September of 1996. About 90% of the female trainees and 13% of the male trainees who entered basic training were asked to participate in the survey; 98.4% of the female and 98.9% of the male trainees who were given the opportunity participated. (Some trainees refused to participate and some were participating in other testing or training.)

Table 1 shows the demographic data for 1996 female and male trainees. The 1996 female trainees have a mean age of 19.5 years ($SD = 2.0$) with a range from 17 to 34 years and male trainees have a mean age of 19.6 years ($SD = 2.0$) with a range from 17 to 33 years. Most of

the 1996 female (96.3%) and male (95.6%) trainees have a minimum of a high school education and 12.17% completed at least one year of college or technical school. A relatively small percentage of the women (4.8%) and men (5.2%) were ever married. About 40.6% of the female trainees and 48.9% of the male trainees reported family incomes of more than \$35,000 per year. The majority of 1996 trainees were Caucasian, single, and high school graduates with a family income of more than \$25,000 per year. In Table 1 the two lowest family income categories contained in the 1996 survey "under \$10,000" and "\$10,000 to \$14,999" were collapsed.

Overall, the 1996 trainees differed from the 1994 trainees in a number of respects. The 1996 trainees were younger than the 1994 trainees (women, $t(2805) = 9.76, p < .01$; men, $t(2912) = 7.50, p < .01$). The two samples had significantly different distributions for marital status (women, $\chi^2[3, n = 2801] = 62.29, p < .01, w = .15$; men, $\chi^2[3, n = 2909] = 11.47, p < .01, w = .06$); ethnicity (women, $\chi^2[4, n = 2728] = 13.76, p < .01, w = .07$; men, $\chi^2[4, n = 2849] = 14.61, p < .01, w = .07$), and family income (women, $\chi^2[4, n = 2745] = 24.48, p < .01, w = .09$; and men, $\chi^2[4, n = 2851] = 24.83, p < .01, w = .09$).

Chi-squares were not computed for level of education because two different methods were used to collect the data for the samples. The 1994 sample was allowed to write-in the exact level of education (e.g., one college course, 2 semesters of college) whereas the 1996 sample was given two forced-choice items related to education. The first items asked the participant to mark the highest year of school completed (9 through 20) and the second item asked the participant if she/he had an academic degree (from GED through Ph.D.).

In summary, although statistical differences were found between the 1994 and 1996 trainee samples, they were demographically similar. The main differences were that the 1996 trainees (1) were slightly younger (2) were less likely to be currently, or have ever been married; (3) had a higher percentage of African-American women, Caucasian men, and Hispanics; and (4) had more participants from higher income families. It should be noted, however, that although statistically significant demographic differences were found between the 1994 and 1996 samples of trainees, the effect sizes (w) were small, and therefore it is unlikely that the demographic differences between the two samples are of practical significance.

Table 1

Demographic Characteristics of Basic Trainees

Characteristic	Trainee	Women		Men	
	Sample	n	%	n	%
Marital Status					
Single	1994	1606	85.1	1714	91.1
	1996	832	90.8	942	91.5
Married	1994	168	8.9	114	6.1
	1996	32	3.5	45	4.4
Divorced/Separated	1994	80	4.2	20	1.1
	1996	11	1.2	7	1.0
Widowed	1994	1	0.0	1	0.0
	1996	1	0.0	1	0.0
Cohabiting	1994	32	1.7	33	1.8
	1996	40	4.4	34	3.3
Race/Ethnicity					
White	1994	1185	63.1	1348	71.6
	1996	583	64.7	671	66.8
African-American	1994	427	22.7	291	15.5
	1996	168	18.6	155	15.4
Hispanic	1994	138	7.3	147	7.8
	1996	97	10.8	116	11.6
Asian	1994	52	2.8	50	2.7
	1996	29	3.2	37	3.7
American Indian	1994	34	1.8	23	1.2
	1996	15	1.7	11	1.1
Other	1994	43	2.3	23	1.2
	1996	9	1.0	14	1.4

Table 1 (Cont')

Demographic Characteristics of Basic Trainees

Characteristic	Trainee	Women		Men	
	Sample	n	%	n	%
Education					
Not high school graduate					
	1994	84	4.4	71	3.8
	1996	34	3.7	45	4.4
High school graduate					
	1994	1019	54.0	1021	54.4
	1996	725	79.6	843	82.1
GED					
	1994	44	2.3	64	3.4
	1996	6	1.0	14	1.4
Technical school or some college (includes degrees)					
	1994	741	39.2	722	38.4
	1996	146	16.0	125	12.2
Family Income					
Less than 15,000					
	1994	475	25.5	369	19.9
	1996	181	20.4	157	15.7
\$15,001 to 25,000					
	1994	360	19.4	297	16.0
	1996	158	17.8	159	16.0
\$25,001 to 35,000					
	1994	388	20.9	356	19.2
	1996	188	21.2	192	19.3
\$35,001 to 50,000					
	1994	382	20.6	428	23.1
	1996	180	20.3	194	19.5
Over 50,001					
	1994	253	13.6	406	21.9
	1996	180	20.3	293	29.4

Test Instruments

Demographic and Family History Questionnaire (DFHQ). Both the 1994 and the 1996 questionnaires contained items related to the respondent's age, race, marital status, number of children, educational level, family (parents) income during the past year, and location of primary childhood residence. Questions were asked about the respondent's family structure (e.g., parental separation/divorce), parental discipline, and the respondent's friends (e.g., were friends ever in legal trouble). In addition, the 1994 DFHQ contained an item, taken from a survey by Koss, Gidycz, and Wisniewski (1987a), that asked the respondent to indicate how often she/he had observed a parent or stepparent deliver physical blows to the other parent during an average month when the respondent was growing up. The 1996 DFHQ contained a similar item that simply asked how often a parent or stepparent had hit, kicked, threw down, bit, or choked the other parent when the respondent was growing up. The item asking about parental discipline was the same for the 1994 study and the study of college students. However, for the 1996 study, the same question was used but the response options were anchored on a Likert-type scale from 1 to 5 with only the scale end-points labeled ("Not at all strict" for 1 and "Extremely strict" for 5). For the 1994 study and the study of college students, each response option was labeled.

Conflict Tactics Scale (CTS), Parent-Child (PC) version. The same modified CTS (Form R; Straus, 1990, p. 33) was used in the 1994 and 1996 surveys. The CTS Parent-Child (PC) version was used to measure the respondent's recall of the techniques used by her/his parents to resolve parent-child conflicts. The CTS PC contains 19 items that ask how often a given conflict resolution technique was used by either parents or stepparents during the worst year of the respondent's life before the age of 18. The CTS PC consists of three subscales: reasoning (three items), verbal aggression (six items, a seventh "cry" item was not scored, as recommended by Straus, 1990, p. 37), and physical violence (nine items). The response format consisted of seven response categories indicating the frequency ("never" to "more than 20 times") that the conflict resolution technique was used. To obtain frequency rates, participants who indicated that they had experienced at least one of the behaviors listed in the subscale were counted. This scoring procedure is one of several CTS scoring procedures that have been suggested by the test author (Straus, 1990, p. 36). Participants who did not respond to one or more items within a subscale were deleted from the analyses.

Similar internal consistency reliabilities were found for community samples, the 1994, and the 1996 sample of trainees. For example, a study that used a similar CTS PC questionnaire to assess parenting behavior (in the family of origin) during physically abusive and nonabusive parents' childhood reported internal consistency reliabilities for the CTS PC reasoning, verbal aggression, and physical violence subscales of .47, .83, and .85, respectively (Caliso & Milner, 1994). In the 1994 study, for the women, the internal consistency reliabilities for the CTS PC reasoning, verbal aggression, and physical violence subscales were .54, .84, and .85, respectively; for the men, they were .55, .82, and .81, respectively. In the 1996 study, for the women, the internal consistency reliabilities for the CTS PC reasoning, verbal aggression, and physical violence subscales were .52, .86, and .85, respectively; for the men, they were .66, .87, and .85, respectively. Several authors have used modified versions of the CTS PC to show relationships between a respondent's recall of the childhood experience of physically abusive parenting behavior and subsequent abuse experiences (e.g., Caliso & Milner, 1994; Downs, Miller, Testa, & Panek, 1992; Follette & Alexander, 1992; Hartz, 1995; Muller, Caldwell, & Hunter, 1994; O'Keefe, 1995; Riggs, O'Leary, & Breslin, 1990; Sack, Keller, & Howard, 1982).

Conflict Tactics Scale (CTS), Intimate Partner (IP) version. In the 1994 study, two forms of a modified CTS (Form A; Straus, 1979, p. 87) were used to measure the respondent's recall of the techniques used by the respondent and his/her romantic partners to resolve conflicts. One form of the CTS IP ("I did") asked about how frequently the respondent used different conflict resolution techniques with romantic partners (where romantic partner was defined as a person with whom the respondent was "dating, seeing, going steady with, or were married"). The second form of the CTS IP ("Did to me") asked the respondent how frequently different conflict resolution techniques were used by his/her romantic partners. The CTS IP surveys used in the 1994 study contained 18 items.

The CTS IP consists of three subscales: reasoning (the four original CTS Form A items), verbal aggression (the six original CTS Form A items), and physical violence (eight items: original four CTS Form A items plus four items, "slapped the other person," "kicked, bit, or hit with a fist," "beat the other person," and "threatened the other person with a knife or gun," from the CTS Form R, Straus, 1990, p. 33). Only frequency rates for the physical violence subscale will be reported in this study.

On both forms of the CTS IP ("I did," "He/She did"), the item response format consisted of five response categories indicating the frequency ("never" to "often") that the conflict resolution technique was used. To obtain frequency rates, the number of participants who indicated that they had experienced at least one of the behaviors listed in the subscale was counted. As noted in the previous section, this scoring approach is one of several CTS IP scoring procedures that has been suggested by the test author (Straus, 1990, p. 36). Participants who did not respond to one or more items within a subscale were deleted from the analyses.

Although some respondents potentially might have marked "never" to all of the CTS IP survey items for several reasons (e.g., they may never have used any conflict resolution techniques or they may never have had a romantic partner), the present study was interested only in those respondents who indicated that they had resolved conflicts with romantic partners, so respondents who marked "never" to all of the items on either of the CTS IP surveys ("I did," "He/She did") were excluded from the analyses. This decision follows a procedure previously used by Pan, Neidig, and O'Leary (1994).

In the 1994 study, for the women, the internal consistency reliabilities for the CTS IP ("I did") reasoning, verbal aggression, and physical violence subscales were .73, .76, and .89, respectively; and, for the men, the internal consistency reliabilities for the CTS IP ("I did") reasoning, verbal aggression, and physical violence subscales were .78, .76, and .80, respectively. The internal consistency reliabilities for the CTS IP ("Did to me") reasoning, verbal aggression, and physical violence subscales were, for the women, .73, .76, and .89, respectively; and, for the men, they were .78, .78, and .88, respectively.

In the 1996 study, two versions of the CTS intimate partner (IP) version (Form R; Straus, 1990, p. 33) were used, each containing 18 items. A version was used to measure the respondent's recall of the techniques she/he used to resolve conflicts with her/his intimate partners. A second version was used to measure the respondent's recall of the techniques her/his intimate partners used to resolve conflicts with her/him. The CTS IP consists of three subscales: reasoning (three items), verbal aggression (six items, a seventh "cry" item was not included because it is not scored), and physical violence (nine items). The item response format consisted of seven response categories indicating the frequency ("0" to "more than 10+") that the conflict resolution technique was used. To obtain frequency rates, participants who indicated that they

had experienced at least one of the behaviors listed in the subscale were counted. This scoring procedure is one of several CTS scoring procedures that have been suggested by the test author (Straus, 1990, p. 36). Frequency rates will only be reported for the physical violence subscale in the present study. Participants who did not respond to one or more items within a subscale were deleted from the analyses.

In the 1996 study, for the women, the internal consistency reliabilities for the CTS IP ("I did") reasoning, verbal aggression, and physical violence subscales were .22, .76, and .80, respectively. For the men, the internal consistency reliabilities for the CTS IP ("I did") reasoning, verbal aggression, and physical violence subscales were .40, .76, and .90, respectively. For the women, the internal consistency reliabilities for the CTS IP ("Did to me") reasoning, verbal aggression, and physical violence subscales were .33, .78, and .85, respectively; and, for the men, the internal consistency reliabilities were .41, .82, and .85, respectively.

Although the CTS was initially developed for married couples, it has been used extensively to study courtship violence (e.g., Billingham & Notebaert, 1993; Billingham & Sack, 1986; Bookwala, Frieze, Smith, & Ryan, 1992; Cate, Henton, Koval, Christopher, & Lloyd, 1982; Deal & Wampler, 1986; Lane & Gwartney-Gibbs, 1985; Laner & Thompson, 1982; Makepeace, 1983, 1986; Ryan, 1995; Sack et al., 1982; White & Humphrey, 1994b; White & Koss, 1991).

Physical Injury. While the previously described versions of the CTS IP ("Did to me") assessed the receipt of physically violent acts, they did not ask if the respondent had been physically injured by an intimate partner. Thus, immediately following both the 1994 and 1996 CTS IP items, an additional item asked if the respondent had ever been physically injured by a romantic partner. Five response options were available, ranging from "No, I was never injured" to "Yes, the injury required hospitalization."

Michigan Alcoholism Screening Test (MAST). The MAST is a 25-item questionnaire that was developed "to provide a consistent, quantifiable, structured interview instrument for the detection of alcoholism" (Selzer, 1971, p. 1654). However, the MAST has been widely used as a survey instrument for alcohol problems (e.g., Brady, Foulks, & Childress, 1982; Storgaard, Nielsen, & Gluud, 1994). The MAST items have a yes/no response format and weighted item-scoring criteria, which score 24 MAST items, excluding Item 7 from the total score (Selzer, 1971). Item number 6, "Do friends or relatives think you are a normal drinker?" was

inadvertently excluded from the 1996 survey. Therefore, to allow for a comparison of the 1994 MAST data with the 1996 MAST data, 1994 rates were recomputed without this item.

During the coding of the 1994 surveys, it was noted that some respondents wrote on the MAST that they did not drink and then marked all MAST items "no", apparently without reading the items. Marking all items "no" results in a score of 8 points, which is above the cutoff score of 5 points used by Selzer (1971) to indicate that a respondent is an "alcoholic." A nondrinking respondent who read the items would have to answer several of the MAST items "yes" to earn a zero score. Therefore, to ensure that participants who had never consumed alcohol were not scored erroneously as having alcohol problems, all respondents (92 females; 101 males) who marked "no" for all MAST items were excluded from the analyses. To aid in minimizing this problem on the 1996 survey, the following screening question preceded the MAST items, "Have you EVER consumed ANY amount of alcoholic beverages?" If the participant answered "Yes" they were instructed to continue answering the MAST items, however, if they answered "No" they were instructed to proceed to the next section of the survey.

Using male and female psychiatric patients, Zung (1982) reported an internal consistency reliability of .91 for the MAST, when the test was used to assess lifetime alcohol problems. In the same study, Zung reported that the MAST test-retest reliabilities for lifetime alcohol problems across a 1-day interval was .97. In another group of psychiatric patients, the MAST temporal stability for a test-retest interval of 4.8 months was .84 (Skinner & Sheu, 1982). For the 1994 trainees the internal consistency of the MAST was .65 for women and .73 for men. For the 1996 trainees, internal consistencies were .77 for women and .73 for men.

With respect to the individual classification rates of MAST scores, Storgaard et al. (1994) reviewed existing validity studies and found varying degrees of test sensitivity, ranging from .36 to .98, and selectivity, ranging from .57 to .96. While the lack of agreement on what constitutes alcoholism varied from study to study, Storgaard et al. indicated that across studies, a substantial relationship (.91) was found between the MAST positive predictive value (ratio of true positive classifications to all positive classifications) and the prevalence of alcohol problems. While the data suggest caution should be used in using the MAST scores for individual classification purposes, the data indicate that the MAST has some utility as a screening instrument for detecting lifetime alcohol problems, especially when used on a group basis, as in the present study.

Sexual Events Questionnaire. The 1994 survey used a modified version of the Sexual Events Questionnaire (Finkelhor, 1979) to assess childhood sexual experiences. The questionnaire began by asking respondents to indicate (by marking either "yes" or "no") whether they had experienced any of the several listed types of sexual acts before the age of 14. The sexual acts were listed in hierarchical order of severity, from seeing another person's sexual organs to having vaginal intercourse with a member of the opposite sex. For the last sexual experience item marked "yes," respondents were asked to provide more detail. The follow-up questions asked about the frequency and duration of the act, a description of the other person (i.e., stranger, neighbor, father, mother), respondent's age at the first occurrence, the age of the other person, and a reason why she/he thought the act occurred. The participants were not told to list only experiences with other people who were 5 or more years older than the participant or experiences wherein the other person used authority, bribes, threats, or physical force.

Because of the hierarchical ordering of the sexual acts and because the respondents were asked to provide details for only the last sexual act marked "yes," some of the participants may have had a less severe experience with a person who was 5 or more years older but also a more severe experience with an age group peer. Therefore, they would have provided details for only the peer experience and the peer experience would not have been classified as child sexual abuse. The first or lowest order sexual act was, "Another person showed his/her sex organs to you." The last or highest order sexual act for men was, "A female had intercourse with you with any amount of penetration (ejaculation not necessary)." For the women the last sexual act was, "Another person had intercourse with you (vaginal, oral, or anal) with any amount of penetration (ejaculation not necessary)."

For the 1996 survey, the Childhood Sexual Experiences Checklist (CSEC) was developed, based on experience with the 1994 survey and expert opinion, to collect detailed histories of childhood sexual abuse. Four versions of the CSEC were used in the 1996 survey. All versions of the CSEC asked about events prior to the respondent's 18th birthday. The first version asked respondents to indicate whether a family member had had oral, anal, or vaginal intercourse with the participant. Respondents who indicated that a family member had had intercourse with them were then asked the relationship of the family member, the respondent's age when it first happened, the family member's age when it first happened, the number of times it happened, and

whether the family member had used threats or physical force. The second version of the CSEC was the same as the first except that the respondent was asked if a family member had ever kissed the respondent in a sexual way or touched the respondent's body in a sexual way, or made the respondent touch the family member's sexual parts, but did not have oral, anal, or vaginal intercourse. The third version of the CSEC was similar to versions 1 and 2, however, it asked the respondent if someone who was not a family member and who was 5 or more years older than the respondent had had oral, anal, or vaginal intercourse with the respondent (with any amount of penetration), or had inserted a finger or object in the respondent's anus. The male respondent's version asked only whether another person had inserted a finger or object in the respondent's anus; the female respondent's version asked whether another person had inserted a finger or object in her anus or vagina. The fourth version of the CSEC was similar to versions 1, 2, and 3. It asked the respondent if someone who was not a family member and who was 5 or more years older than the respondent had ever kissed the respondent in a sexual way, touched the respondent's body in a sexual way, or made the respondent touch the other person's sexual parts, but did not have oral, anal, or vaginal intercourse. All versions of the CSEC instructed the respondent to proceed to the next section if she/he had not had one of the listed experiences.

Sexual Experiences Survey (SES). In the 1994 survey, an 11-item version of the SES was used to assess the incidence and prevalence of male sexual aggression since the participant's 14th birthday. Male participants completed the standard 10-item version with an additional item added to attempt to obtain reports of involvement in gang rape (Koss & Gaines, 1993). Respondents were asked how frequently they had engaged in the questioned behavior for the past year and since they were 14 years old. A 5-point scale (0 = never, 1 = once, 2 = twice, 3 = several times, 4 = often) was used for each time interval. The SES measures four levels of sexual aggression, (1) unwanted sexual contact, (2) sexual coercion, (3) attempted rape, and (4) rape.

In the 1994 survey, female participants completed a 5-item version of the SES which asked only about attempted rape and rape. These questions were answered either "yes" or "no." For each "yes" response, participants indicated when the experience occurred from among one of five options, ranging from "less than 3 months" to "more than 2 years." SES internal reliability for the 10-item scale is .74 for college women. A mean item agreement of 93% was found when SES administrations (for men) were one week apart for the 11-item version (Koss & Gidycz, 1985).

In the 1996 survey, a 10-item version of the SES was used to assess the incidence and prevalence of sexual aggression since the participant's 14th birthday (Koss & Gidycz, 1985; Koss & Oros, 1982). Both female and male participants completed the standard 10-item version. An additional item was developed in-house to attempt to obtain reports of involvement in gang rape. Respondents were asked how frequently (from "0" to "10+ times") they had engaged in the behavior from 14 to 18 years of age and since their 18th birthday. The SES measures four levels of sexual aggression, (1) unwanted sexual contact, (2) sexual coercion, (3) attempted rape, and (4) rape. The internal reliabilities were .91 for the females and .85 for the males.

Procedure

1994 Study: The questionnaires used in the 1994 study were administered as part of a more extensive survey package offered to Navy basic trainees during their first week at the RTC, Orlando, Florida. Data collection began in January 1994. The data collection from the male trainees was completed in March 1994. Because there were relatively fewer female trainees, the data collection from women was completed in April 1994, after the number of women tested was approximately equal to the number of men tested. The survey was administered in a classroom by two (male and female) U.S. Navy Hospital Corpsmen who are qualified psychological technicians and experienced in administering psychological tests.

In the process of requesting that trainees participate in the study, a corpsman gave the trainees a description of the study, the informed consent, and privacy act statements. In addition, a corpsman read these materials to the trainees. Trainees who agreed to participate were told they could "leave blank any section or questions that you do not want to answer" and that they were "free to stop at any time before completing the survey." The participants were informed that professional counseling would be provided upon request if the recall of past traumatic experiences caused them distress.

1996 Study: The questionnaires used in the 1996 study were administered as part of a more extensive survey package offered to Navy basic trainees during their first week at the RTC, Great Lakes, Illinois. Data collection began in June 1996 and was completed in September 1996. The survey was administered to all gender-integrated divisions (i.e., divisions comprised of both women and men). All women at the RTC, Great Lakes are members of integrated divisions, therefore, with the exception of women at medical appointments or women completing

administrative tasks or training, most of the female trainees had an opportunity to participate in the survey. Male trainees are assigned to integrated divisions in the same manner as male trainees are assigned to all-male divisions, i.e., there is no selection bias. The survey was administered in a classroom at the RTC by two civilian proctors. In separate classrooms, a female proctor administered the survey to the female trainees and a male proctor administered the survey to the male trainees.

In the process of requesting that trainees participate in the study, the proctors gave the trainees a description of the study, the informed consent, and privacy act statements. In addition, the proctors read these materials to the trainees. Trainees who agreed to participate were told they could "leave blank any section or questions that you do not want to answer" and that they were "free to stop at any time before completing the survey." The participants were informed that professional counseling would be provided upon request if the recall of past traumatic experiences caused them distress. At the end of the allotted time, a member of the RTC counseling staff again informed the trainees that counseling would be provided upon request and the procedure they should follow to obtain counseling.

Two versions of the survey were administered to trainees. An anonymous version was administered to approximately 50% of the trainees; it did not request any personal identifying information. A nonanonymous version was administered to about 50% of the trainees; it requested the participant's name, social security number, and date of birth. The participants who completed the nonanonymous version were told that the files that contained their personal identifying information would be stored at Northern Illinois University and that no government employee would have access to their files. To allow for a more direct comparison with the data collected anonymously in 1994, the 1996 data presented in this report is based on data collected anonymously.

Definition of Terms

No agreed upon unitary definitions exist for many terms used in violence or sexual abuse research (e.g., O'Donohue, 1992). The following operational definitions of terms will be used in the present study.

Alcoholic. Selzer (1971) defined a score of 5 or more points on the MAST as alcoholic and, for descriptive purposes, the same scoring was used in the 1994 and 1996 studies.

Attempted rape. Respondents were scored as victims or perpetrators of attempted rape if they marked one or more items in the SES subscale for attempted rape. These items asked the respondent whether unwanted sexual intercourse had been attempted with the threat of force, or the actual use of force. For men only, in the 1994 survey, the perpetration of attempted rape was also defined as "attempting to have sexual intercourse with a woman when she didn't want to by giving her more alcohol or drugs than she could handle." The 1996 survey asked men about the perpetration of attempted rape through the use of alcohol or drugs, and it asked women whether they had been the victims of attempted rape through the use of alcohol or drugs.

Childhood sexual abuse. In both the 1994 and 1996 surveys, respondents were defined as victims of childhood contact sexual abuse if they indicated that, before the age of 14, they had had sexual contact with someone who was five or more years older; and/or, before the age of 14, they had experienced sexual contact with someone who used authority, bribes, threats of force, or force. The term "contact sexual abuse" refers to experiences in which some type of physical sexual contact occurred, such as fondling, stroking of sex organs, attempted intercourse, and oral, anal, or vaginal intercourse.

Childhood peer sexual experience. Respondents who had physical-sexual contact with someone, before the age of 14, who was not five years older and who did not use authority, bribes, threats of force, or force were considered to have had a childhood peer sexual experience.

Childhood physical abuse. A respondent was scored as a victim of child physical abuse if she/he indicated experiencing at least one of the behaviors listed in the CTS PC severe violence subscale. These items ask the respondents if a parent had ever kicked, bit, hit them with a fist, hit or tried to hit them with something, beaten them up, burned or scalded them, threatened them with a gun or knife, or had used a gun or knife against them. An additional item was included in the 1996 survey, "Choked you," as recommended by Straus and Gelles (1990).

Intimate partner violence. A score of one or more on the violence subscale of the CTS IP was defined as an occurrence of intimate partner violence. The behaviors that comprise this subscale for perpetrators are: throwing something at; pushing, grabbing, shoving, or slapping; hitting or trying to hit, but not with anything; hitting or trying to hit with something hard; kicking, biting, or hitting with a fist; beating up; and/or threatening an intimate partner with a knife or gun. The 1996 survey contained 2 additional items ("Choked you" and "Used a knife

or fired a gun"), as recommended by Straus and Gelles (1990). Respondents are considered victims of intimate partner violence if they were the recipients of one or more of the behaviors contained in the minor or severe violence scales of the CTS IP.

Intimate partner. An intimate partners was defined as someone the participant was, "...dating, seeing, going steady with, or are/were married (to)."

Prevalence. Generally, the word prevalence refers to the number of cases that exist in a population at any particular time (Campbell, 1981). In this report, prevalence is defined as the number of cases that occurred (1) before the age of 14 for childhood sexual abuse, (2) before the age of 18 for childhood physical abuse, and (3) since the age of 14 for sexual assault.

Rape. Respondents were considered victims of rape if they had experienced at least one instance of one of the behaviors contained in the SES subscale for rape. These behaviors indicate that the respondent has been the perpetrator (for men) or the victim (for women) of unwanted vaginal, oral, or anal sexual intercourse after the age of 14, in which alcohol, drugs (intentional incapacitation of the woman via alcohol or drugs), the threat of force, or force was used. In the 1994 study, for women only, rape was also defined as penetration by objects, without consent, through force or the threat of force. In the 1996 study, this definition was applied to both women (as victims) and men (as perpetrators).

RESULTS

The data set is too large to allow for a detailed analysis in a single paper. Therefore, only basic descriptive data for the (1) CTS PC, (2) childhood sexual experiences before the age of 14, (3) SES for women and men, (4) CTS IP, (5) MAST, and (6) selected background data will be reported here for both the 1994 trainee and 1996 trainee samples.

Chi-square tests were used to determine if the distributions of prevalence rates for abusive behaviors differed between the 1994 trainee and 1996 trainee samples. A conservative significance level of .01 was used. For significant findings, effect sizes (w for chi-squares) were calculated using Cohen's (1988) method to allow for a determination of their practical value. Cohen (1988) stated that a w of .10 signifies a small effect, a w of .30 signifies a medium effect, and a w of .50 signifies a large effect. To allow for comparisons, the ethnic and the family

income categories used in the present study are the same as those used by Koss et al. (1987a) and similar to those used in the U.S. census. To facilitate comprehension of the results, some comparison data and discussion will be presented in this section.

Background Characteristics

Table 2 contains data associated with the background characteristics of trainees that may be related to victimization (Finkelhor, Hotaling, Lewis, & Smith, 1990; Koss et al., 1987a). For descriptive purposes, data collected from a nationwide survey of college students are also presented (Koss, Gidycz, & Wisniewski, 1987b). As can be seen in Table 2 about 57% of the 1994 female and male trainees' parents were either divorced or separated whereas this was true for only about 42% of the 1996 trainees, and about 24% of the college students. A significantly higher percentage of 1994 female trainees, $\chi^2(1, n = 2789) = 78.33, p < .01, w = .17$, and male trainees, $\chi^2(1, n = 2904) = 36.33, p < .01, w = .11$, came from broken homes compared to 1996 trainees.

Parental discipline was assessed by asking respondents, "How strict were your parents in making you obey their rules?" Overall, the distribution of responses for the 1994 and 1996 samples were significantly different for the women, $\chi^2(4, n = 2790) = 149.99, p < .01, w = .23$; and the men, $\chi^2(4, n = 2895) = 226.09, p < .01, w = .28$. Table 2 shows similar distributions for the 1994 trainees and the college students, with a modal response of "Somewhat strict." The modal response for the 1996 trainees is "Very strict." However, a larger number of both female and male respondents, for all three studies, indicated their parents were "Very" or "Extremely strict" compared to "A little" or "Not at all strict." Combining the two categories of very and extremely strict, it can be seen that stricter parental discipline was perceived by the 1996 female (60.4%) and male (55.9%) trainees than by the 1994 female (40.6%) trainees and male trainees (30.9%).

Separate questions queried trainees about witnessing parental violence, running away from home, suicidal ideation, and whether they ever received counseling or psychotherapy. The distribution of responses for the 1994 and 1996 samples of trainees for witnessing parental violence were significantly different for both females, $\chi^2(4, n = 2408) = 135.53, p < .01, w = .24$, and males, $\chi^2(4, n = 2483) = 137.97, p < .01, w = .24$. Focused chi-square tests comparing the

differences between the percentages of 1994 and 1996 trainees who witnessed any parental violence revealed that a higher percentage of 1996 female trainees witnessed parental violence (54.1%) than did 1994 female trainees (31.0%), $\chi^2(1, n = 2408) = 97.27, p < .01, w = .20$. The same pattern was found for males: a higher percentage of 1996 male trainees witnessed parental violence (39.7%) than did 1994 male trainees (20.2%), $\chi^2(1, n = 2483) = 94.33, p < .01, w = .19$. Thus, a higher percentage of the 1996 than the 1994 trainees had witnessed parental violence.

About 3 in 20 of the 1994 and 1996 female trainees and about 2 in 20 of the 1994 and 1996 male trainees reporting running away from home. The percentages found for the 1994 and 1996 female and male trainees were not significantly different, $\chi^2(1, n = 2800) = 1.28, p > .01$ and $\chi^2(1, n = 2897) = .51, p > .01$, respectively.

Female trainees in the 1996 study reported the highest percentage of suicidal ideation (29.8%), followed by 1996 male trainees (17.4%), 1994 female trainees (16.9%), and 1994 male trainees (10.8%). In both gender groups, the percentage of reported suicidal ideation reported by the 1996 trainees was significantly higher than that reported by the 1994 trainees, females, $\chi^2(1, n = 2783) = 61.13, p < .01, w = .15$; and males, $\chi^2(1, n = 2893) = 28.18, p < .01, w = .10$.

Data are presented in Table 2 for respondents' reported rates of receiving counseling or psychotherapy for 1994 trainees and 1996 trainees. No significant difference was found between 1994 and 1996 female trainees, $\chi^2(1, n = 2788) = 4.04, p > .01$, or between 1994 and 1996 male trainees, $\chi^2(1, n = 2894) = 5.59, p > .01$.

The age at first intercourse was similar for both the 1994 (15.6 years) and 1996 (15.5 years) female trainees, $t(2299) = .91, p > .01$. The 1996 male trainees (15.1 years) were significantly older than the 1994 trainees (14.7 years) for age of first reported intercourse, $t(2299) = 3.04, p < .01, w = .14$. However, as reflected in the effect size, the difference is small. Female and male college students reported having their first intercourse at higher ages (16.9 for females and 16.7 for males) than the female and male trainees. A recent nationwide representative survey of men and women found that for people born between 1963 and 1967, the mean age at first intercourse is about 17.1 for women and 16.4 for men (Michael, Gagnon, Laumann, & Kolata, 1994).

Table 2 shows the number of different sexual partners reported by the female and male trainees in 1994 and 1996. Overall, the 1996 distribution is significantly different than the 1994 distribution for both women, $\chi^2(4, n = 2525) = 183.96, p < .01, w = .27$; and men, $\chi^2(4, n = 2566) = 218.74, p < .01, w = .29$. The mean number of different sexual partners for the 1996 female trainees ($M = 6.7; SD = 8.4$) was significantly lower than it was for the 1994 female trainees ($M = 8.0; SD = 9.2$), $t(2528) = 3.54, p < .01$, (See Table 2). Similarly, the mean number of different sexual partners for the 1996 male trainees ($M = 6.9; SD = 9.45$) was significantly lower than it was for the 1994 male trainees ($M = 10.7; SD = 12.0$), $t(2564) = 8.51, p < .01$, see Table 2. About 97.7% of the total 1994 sample of trainees reported having sexual intercourse with at least one other person of the opposite gender while this was true for only 83.3% of the 1996 sample, $\chi^2(1, n = 5091) = 347.96, p < .01, w = .26$. However, the modal response for both the 1994 and 1996 sample was 2 to 5 different sexual partners.

In summary, compared to the 1994 sample, the 1996 sample reported a lower percentage of parental divorce, a stricter level of parental discipline, a larger percentage of witnessed parental violence, a higher rate of suicidal ideation, and somewhat lower rates of counseling (for males only), a higher age at first intercourse (for males only), and a smaller number of different sexual partners.

Table 2

*Percentage Rates for Selected Background Characteristics of
Basic Trainees and College Students**

<i>Characteristic</i>	<i>Trainee Sample</i>	<i>% Women</i>		<i>% Men</i>	
		<i>Trainees</i>	<i>Students</i>	<i>Trainees</i>	<i>Students</i>
Parents Divorced or Separated	1994	60.0	25.2	54.4	22.4
	1996	42.2		42.7	

Parental Discipline					
Not at all strict	1994	5.7	3.5	5.6	3.6
	1996	2.1		3.0	
A little strict	1994	13.7	14.4	14.8	14.5
	1996	7.2		7.7	
Somewhat strict	1994	40.0	46.9	48.7	50.2
	1996	30.3		33.4	
Very strict	1994	32.7	30.3	26.3	29.1
	1996	39.4		38.2	
Extremely strict	1994	7.9	4.8	4.6	2.5
	1996	21.0		17.7	

Witnessed Parental Violence					
Once or twice	1994	16.5	12.3	12.8	11.3
	1996	18.6		15.8	
3 - 5 times	1994	5.8	2.9	2.7	1.5
	1996	11.8		9.8	
6 - 10 times	1994	3.2	1.1	1.7	.8
	1996	9.7		5.0	
11 - 20 times	1994	1.9	.4	1.3	.3
11 - 17 times	1996	2.8		1.9	
Over 20 times	1994	3.6	.6	1.7	.5
Over 18 times	1996	11.2		7.2	
Total of once or more	1994	31.0	17.3	20.2	14.4
	1996	54.1		39.7	

Table 2 (Cont')

***Percentage Rates for Selected Background Characteristics of
Basic Trainees and College Students****

<i>Characteristic</i>	<i>Trainee</i>	<i>% Women</i>		<i>% Men</i>	
	<i>Sample</i>	<i>Trainees</i>	<i>Students</i>	<i>Trainees</i>	<i>Students</i>
<hr/>					
Ran Away From Home					
	1994	16.1	5.0	12.3	**
	1996	17.8		11.4	
<hr/>					
Contemplated Suicide					
	1994	16.9	23.0	10.8	15.7
	1996	29.8		17.4	
<hr/>					
Had Counseling or Psychotherapy					
	1994	20.3	21.4	13.2	12.6
	1996	17.1		10.2	
<hr/>					
Number of Different Sexual Partners					
0	1994	2.0		2.7	
	1996	16.2		17.2	
1	1994	11.9		12.6	
	1996	12.5		16.6	
2 - 5	1994	41.6		31.2	
	1996	34.3		31.5	
6 - 10	1994	20.8		20.4	
	1996	19.2		17.1	
11 - 15	1994	10.1		10.1	
	1996	8.6		7.4	
16 - 20	1994	5.5		8.4	
	1996	4.0		3.1	
21 - 30	1994	4.6		7.0	
	1996	2.2		3.2	
31 - 49	1994	2.5		4.4	
	1996	2.1		2.2	
50+	1994	1.2		3.3	
	1996	1.0		1.8	

Note. * Data for college students are from Koss et al., 1987b. ** Not available.

Sexual Experiences Before the Age of 14

The percentage of trainees who reported sexual experiences before the age of 14 are shown in Table 3. The frequencies reported for the categories listed in Table 3 are mutually exclusive. Table 3 lists the rates for the trainees who did and did not report a sexual experience before the age of 14 that involved physical contact with someone who was 5 or more years older. The distributions, of the 1994 and 1996 samples, for sexual experiences prior to the age of 14 were significantly different for the female trainees, $\chi^2(2, 2445) = 57.49, p < .01, w = .15$, but not for the males, $\chi^2(2, n = 2206) = 2.93, p > .01$. The 1994 female trainees reported a slightly higher percentage of total contact sexual experiences before age 14 than the 1996 female trainees but the difference was not significant. However, a significantly higher percentage of the 1996 female trainees than the 1994 female trainees reported experiencing intercourse prior to age 14, $\chi^2(1, n = 2445) = 18.71, p < .01, w = .09$.

Two factors may have attenuated the estimates of childhood contact sexual abuse among trainees in the 1994 study. The first factor is the absence of the specification of a 5-year age differential in the instructions in the instrument used in the 1994 study to collect childhood sexual histories. The second factor is the use of a checklist of sexual experiences in the 1994 study wherein the respondent was asked to provide further data for only the highest order (most severe) experience. These factors, singly and in combination, may have induced a portion of the 1994 trainees to report peer experiences in lieu of experiences that would be defined as abusive. It is not possible to determine if the 1994 trainees who reported a contact peer experience as their most severe experience also had a less severe contact experience that would be defined as contact childhood sexual abuse. Despite the high probability that these factors acted to lower the child sexual abuse rates, a considerable percentage of the 1994 trainees reported childhood contact sexual experiences. These experiences were with someone who was 5 or more years older or occurred with an age group peer who used coercion or physical force, which a number of previous studies have defined as constituting contact childhood sexual abuse (O'Donohue & Geer, 1992; Peters, Wyatt, & Finkelhor, 1986; Russell, 1984; Wyatt & Peters, 1986). Therefore, peer experiences reported by the 1994 and 1996 sample of trainees were not included in the data that are shown in Table 3.

Table 3

*Prevalence Rates for Sexual Experiences of Basic Trainees
Before the Age of 14*

<i>Experience</i>	<i>Trainee</i>	<i>Women</i>		<i>Men</i>	
	<i>Sample</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
<hr/>					
None reported	1994	1,098	68.7	1,158	87.3
	1996	619	73.2	787	89.4
<hr/>					
Physical Contact					
	1994	318	19.9	65	4.9
	1996	77	9.1	41	4.7
Intercourse					
	1994	183	11.4	103	7.8
	1996	150	17.7	52	5.9
Total					
	1994	501	31.3	168	12.7
	1996	227	26.8	93	10.6

Note. The final 1994 sample consisted of 1,599 women and 1,326 men.
The 1996 sample consisted of 846 women and 880 men.

As previously mentioned (see Test Instruments), the preface to the child sexual abuse portion of the 1994 survey did not specify that only sexual experiences that occurred prior to the age of 14 and involved another person who was either (1) 5 or more years older than the respondent, and/or (2) used authority, bribes, threats to hurt, or physical force be reported. Thus, some of the 1994 trainees who reported contact peer experiences prior to the age of 14 may have had another experience or experiences that would be defined as abusive (218 female and 478 male 1994 trainees reported peer experiences). Nineteen of the female trainees and 32 of the male trainees who participated in the 1996 study reported peer experience(s). To allow for a comparison of the 1994 and 1996 data, all reports of peer experiences were considered missing data and those participants were not included in the computation of the rates. Additionally, the

participants in the 1994 survey who reported only noncontact experiences were included in the "none reported" category in Table 3. Data concerning noncontact childhood sexual experiences were not collected in the 1996 survey.

Childhood Parent to Child Conflict Resolution

Table 4 presents the CTS PC results for trainees. These data represent the methods trainees' parents or stepparents used to resolve disputes with trainees before the trainees were 18 years of age. Each of the CTS PC subscales was composed of 3 to 6 different items. Both the severe violence and the very severe violence subscales have been used as measures of child physical abuse (Straus & Gelles, 1990). Exact sample sizes are shown in Table 4 for each subscale along with the percentage of trainees who marked at least one occurrence of a scale item.

An objective of both the 1994 and 1996 studies was to examine CTS PC data from respondents who indicated they had resolved conflicts with their parents. Therefore, the respondents who indicated their parents had "never" used any of the CTS conflict resolution techniques were excluded from the analyses. Four women and 4 men in the 1994 survey indicated their parents had "never" used any of the CTS techniques while 8 women and 24 men in the 1996 survey indicated their parents had "never" used any CTS tactics. The very severe violence subscale consists of the same items as the severe violence subscale except that it does not include the item, "Hit or tried to hit you with something." The violence subscale consists of all of the items in the minor, severe, and very severe subscales. Focused analyses of the CTS severe violence scale rates found no significant difference between the 1994 and 1996 female trainees, $\chi^2(1, n = 2745) = 1.19, p > .01$, or the 1994 and 1996 male trainees, $\chi^2(1, n = 2763) = 1.36, p > .01$.

Table 4

***CTS PC Violence Subscale Percentage Rates for
Basic Trainees****

<i>Subscale</i>	<i>Women</i>		<i>Men</i>	
	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
Minor				
1994	1,854	75.1	1,839	75.5
1996	853	71.4	896	67.5
Severe				
1994	1,874	41.4	1,857	39.1
1996	871	39.2	906	36.8
Very Severe				
1994	1,866	27.7	1,846	25.8
1996	802	25.2	865	25.3
Violence				
1994	1,874	75.8	1,858	76.4
1996	868	73.3	903	69.0

Note. * The n varies for both women and men due to missing data.

Intimate Partner Conflict Resolution

The CTS IP was used to determine the methods trainees used to resolve conflicts between themselves and their intimate partners. Intimate partners were defined as a person(s) of the opposite gender that the trainee was dating, seeing, going steady with, or are/were married to. Trainees were asked to report how often they engaged in (or inflicted) a specified behavior ("I did") and how often their intimate partner engaged in (or they sustained) the same behavior ("He/She did"). The percentage of trainees who reported engaging in at least one incident of one behavior contained in a subscale is presented in Table 5. The minor violence subscale contains the following three items: (1) "Threw something at the other person"; (2) "Pushed grabbed, or shoved"; and (3) "Slapped the other person." The severe violence subscale contains the following five items: (1) "Hit (or tried to hit) the other person, but not with anything"; (2) "Hit (or tried to hit) the other person with something hard"; (3) "Kicked, bit, or hit with a fist"; (4) "Beat the

other person up"; and (5) "Threatened the other person with a knife or gun." The percentage rate for the violence subscale consists of all subjects who endorsed at least one of the minor violence or severe violence items.

In general agreement with the intimate partner violence literature, the female trainees reported inflicting more violent behaviors against their male partners than did male trainees against their female partners. Conversely, male trainees reported sustaining more violent behaviors from their female partners than did female trainees from their male partners. There are several possible explanations for the higher frequencies reported by women. For example, LeJeune and Follette (1994) suggest that men are less likely to take responsibility for their violent behavior than are women. Men have also been found to underreport their own violent behavior (Jouriles and O'Leary, 1985). Finally, Stets and Straus (1990) concluded that women are as violent as men in intimate relationships, when violence is measured by acts. However, when intimate partner violence is measured by injuries, men are more violent than women (see Table 6). Although the intimate partners of the trainees may also have been trainees, the rates of intimate partner violence were not collected from matched couples (i.e., the female trainees are not reporting the behaviors of the male trainees and the male trainees are not reporting the behaviors of the female trainees).

Focused analyses were conducted for the violence scale rates for both the inflict ("I Did") and sustain ("He/She Did") versions of the CTS IP. No significant difference was found between the 1994 and 1996 female trainees for rates of inflicted violence, $\chi^2(1, n = 2266) = 2.09, p > .01$. A significantly higher percentage of the 1994 male trainees, however, reported inflicting intimate partner violence compared to the 1996 male trainees, $\chi^2(1, n = 2065) = 48.03, p < .01, w = .15$. Also, a significantly higher percentage of both the 1994 female and male trainees reported sustaining intimate partner violence compared to the 1996 female, $\chi^2(1, n = 2156) = 10.70, p < .01, w = .07$, and male trainees, $\chi^2(1, n = 1922) = 8.99, p < .01, w = .07$.

Table 5

CTS IP Violence Subscale Percentage Rates for Self and Intimate Partner for Basic Trainees

<i>Version/Subscale</i>	<i>Women</i>		<i>Men</i>	
	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
<i>Self ("I Did")</i>				
Minor violence				
1994	1,676	45.3	1,558	32.1
1996	571	42.2	461	17.1
Severe violence				
1994	1,684	31.2	1,582	16.1
1996	557	22.8	454	5.7
Total Violence*				
1994	1,700	47.5	1,601	34.8
1996	566	44.0	464	17.9
<i>Partner ("He/She Did")</i>				
Minor violence				
1994	1,606	38.8	1,500	41.9
1996	506	32.4	390	36.4
Severe violence				
1994	1,645	26.0	1,524	29.1
1996	499	14.2	373	20.9
Total Violence*				
1994	1,648	41.0	1,542	44.6
1996	508	32.9	380	36.1

Note. * The violence subscale consists of all items in the minor and severe violence subscales.

Physical Injury

Although the CTS IP ("Did to me" or sustained) assessed the occurrence of physically violent acts, it did not ask the respondents if they had been injured by an intimate partner. Therefore, immediately following the CTS IP items, an additional item ("Were you ever physically injured by an intimate partner?") with five-options was used to determine whether the respondent had ever been physically injured by a romantic partner. The options ranged from "No, I was never injured" to "Yes, the injury required hospitalization." Response distributions for this item are presented in Table 6. Although it is possible that the perpetrators of the injuries were also

trainees, the trainees were not matched couples (i.e., the female trainees were not reporting the behaviors of the male trainees and the male trainees were not reporting the behaviors of the female trainees). The results of chi-square analyses (with categories 3, 4, and 5 of Table 6 collapsed) show that the distribution for the 1996 females, $\chi^2(2, n = 2694) = 17.44, p < .01, w = .08$, is significantly different than the 1994 females. For the males, the 1994 and 1996 distributions were not significantly different, $\chi^2(2, n = 2698) = 6.54, p > .01$. A focused comparison of the difference between the percentage of 1994 and 1996 trainee injury rates revealed that for females, the percentage injured was higher in the 1994 (24.0%) than in the 1996 sample (19.2%), $\chi^2(1, n = 2694) = 7.76, p < .01, w = .05$.

Table 6

Percentage of Basic Trainees Injured by an Intimate Partner

Response Option	Sample	Women		Men	
		n	%	n	%
1. No, I was never injured.					
	1994	1394	76.1	1,628	90.7
	1996	698	80.9	806	89.3
2. Yes, but the injury was minor, and no treatment was required.					
	1994	305	16.7	132	7.4
	1996	137	15.9	87	9.6
3. Yes, but the injury was treated by someone other than a medical professional.					
	1994	87	4.8	27	1.5
	1996	16	1.9	6	0.7
4. Yes, the injury required professional medical treatment.					
	1994	36	2.0	4	0.2
	1996	10	1.2	2	0.2
5. Yes, the injury required hospitalization.					
	1994	9	0.5	4	0.2
	1996	2	0.2	2	0.2
Total injured					
	1994	437	24.0	167	9.3
	1996	165	19.2	97	10.7

Female Sexual Experiences Since Age 14

Female trainees sexual experiences since age 14 are presented in Table 7. Data from Koss et al. (1987a) are presented for comparison purposes. Koss et al. (1987a) and the present study used the SES and asked respondents to report sexual experiences since the age of 14. Trainees were classified based on the most severe sexual experience they reported because a simple totaling of the number of trainees who reported each individual behavior would have produced an inflated estimate of the total number of sexually victimized trainees. This is the same scoring procedure used by Koss et al. (1987a). Koss et al. (1987a) included an item asking about attempted unwanted sexual intercourse through the use of alcohol or drugs. This item was not included in the 1994 survey of female trainees but was included on the 1996 survey. To allow for a comparison of the 1994 SES data with the 1996 data, the item was not included in the data analyses for Table 7. However, inclusion of this item in the analysis of attempted rape for the 1996 data reveals that 13.1% of the female trainees reported attempted rape.

Chi-square analysis shows that the distributions of reports of attempted and completed rape for the 1996 sample were significantly different than that of the 1994 sample, $\chi^2(2, n = 2670) = 27.63, p < .01, w = .10$. As can be seen in Table 7, the percentage rate for attempted rape was very similar for both the 1994 and 1996 samples, however, the completed rape rate for 1994 female trainees (36.1%) is significantly higher than the 1996 rate (26.0%), $\chi^2(1, n = 2670) = 26.56, p < .01, w = .10$. The percentage of “total rape” (which includes attempted and completed rape) was also significantly higher for the 1994 female sample (43.8%) than for the 1996 female sample (33.6%), $\chi^2(1, n = 1832) = 24.81, p < .01, w = .12$. Both the 1994 and 1996 rape rates are more than 10% higher than the rate reported for college students (Koss et al., 1987a).

Overall, of the 1994 female trainees ($n = 834$) who reported being the victim of sexual assault, 65.6% (547) exclusively involved reports of the use of force or the threat of force; 17.9% (149) exclusively involved the use of alcohol or drugs; and 16.5% (138) involved both the threat of or use of force and the use of alcohol or drugs. Of the 1996 female trainees ($n = 282$) who reported being the victim of sexual assault, 50.0% (141) exclusively involved reports of the use of force or the threat of force; 23.4% (66) exclusively involved the use of alcohol or drugs; and 26.6% (75) involved both the threat of or use of force and the use of alcohol or drugs.

Table 7

Prevalence Rates for Sexual Experiences Since Age 14 for Female Basic Trainees* and College Students**

<i>Behavior</i>	<i>Trainee</i>	<i>Female Trainees</i>		<i>College Students</i>	
	<i>Sample</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
Unwanted sexual contact	1994	-	-	474	14.9
	1996	118	14.1		
Use of coercive behavior	1994	-	-	370	11.6
	1996	79	9.4		
Attempted rape	1994	141	7.7	386	12.1
	1996	64	7.6		
Rape	1994	661	36.1	503	15.8
	1996	218	26.0		
Total rape***	1994	834	43.8	877	27.9
	1996	282	33.6		

Note. * 1994 trainees, n = 1,832; 1996 trainees, n = 838. ** n = 3,187 (Koss et al., 1987a). ***

"Total rape" includes attempted and completed rape, and both meet legal definitions of rape (Koss et al., 1987a).

Male Sexual Experiences Since Age 14

Male trainees' and college students' (Koss et al., 1987a) experiences with sexual aggression are presented in Table 8. Koss et al. (1987a) included an item that asked about unwanted penetration with objects other than the penis and oral and anal intercourse. This item was not included in the 1994 male version of the trainee survey. Because some trainees reported several different types of sexual aggression, simply totaling the number of trainees who reported each behavior would have produced an inflated estimate of the total number of sexually aggressive trainees. Therefore, trainees were classified based on the most severe sexually aggressive behavior they reported (Koss et al., 1987a). The "total rape" shown in Table 8 is 14.8% for 1994 male trainees and 12.1% for 1996 male trainees; these rates include rape and attempted rape, both of which are legally defined as rape (Koss et al., 1987a).

The overall distributions of sexual experiences, after the age of 14, were significantly different for 1994 and 1996 male trainees, $\chi^2(4, n = 2638) = 15.23, p < .01, w = .08$. Focused tests found no difference between the 1994 and 1996 samples for rates of attempted rape, $\chi^2(1, n = 2638) = .66, p > .01$, or for actual rape, $\chi^2(1, n = 2638) = 2.74, p > .01$. For “total rape” (which includes rape and attempted rape), the rate for the 1994 sample (14.8%) was not significantly higher than the rate for the 1996 sample.

Overall, of the 260, 1994 male trainees who reported perpetrating a sexual assault, 14.6% (38) exclusively involved force or the threat of force, 57.7% (150) exclusively involved the use of alcohol or drugs; and 27.7% (72) involved both the threat or use of force and alcohol or drugs. Of the 107 1996 male trainees who reported perpetrating a sexual assault, 14.0% (15) exclusively involved force or the threat of force, 66.4% (71) exclusively involved the use of alcohol or drugs; and 19.6% (21) involved both the threat or use of force and alcohol or drugs.

To determine the number of male trainees who had participated in gang rape, the following item was developed in-house for the 1996 study, "Have you and another male or you and a group of males taken turns having sexual intercourse with a female who was being forced?" Although the psychometric properties of this item are unknown, the item includes the element of force and appears to have face validity. About 0.5% ($n = 4$) of the 1996 male trainees indicated that they had participated in this activity (but not one of the other experiences categorized as attempted or completed rape) at least once since the age of 14. The inclusion of these respondents in the rape total shown in Table 8 would result in a rape prevalence rate, for 1996, of 12.6%.

Table 8

Prevalence Rates for Sexual Experiences Since Age 14 for Male Basic Trainees* and College Students**

<i>Behavior</i>	<i>Trainee</i>	<i>Male Trainees</i>		<i>College students</i>	
	<i>Sample</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
None	1994	1,040	59.3	2,226	74.9
	1996	592	67.0		
Unwanted sexual contact	1994	304	17.3	303	10.2
	1996	118	13.3		
Use of coercive behavior	1994	150	8.6	214	7.2
	1996	67	7.6		
Attempted rape	1994	62	3.5	98	3.3
	1996	26	2.9		
Rape	1994	198	11.3	131	4.4
	1996	81	9.2		
Total rape***	1994	260	14.8	229	7.7
	1996	107	12.1		

Note. * 1994 trainees, n = 1,754; 1996 trainees, n = 884. ** n = 2,972 (Koss et al., 1987a).

*** "Total rape" includes attempted and completed rape, and both meet legal definitions of rape (Koss et al., 1987a).

MAST Categories

The distribution of scores for the MAST are presented in Table 9. The MAST was scored using procedures described by Selzer (1971). As previously stated, the term "alcoholic" was used by Selzer (1971) to describe those individuals who scored 5 or more points on the MAST. The use of the term "alcoholic" in these tables should not be interpreted to mean that the trainees who scored 5 or more points on the MAST would be clinically diagnosed as alcoholic.

Table 9

*MAST Categories and Points for Female and Male Basic Trainees**

<i>Category and Points</i>	<i>Trainee Sample</i>	<i>Females</i>		<i>Males</i>	
		<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
1. Nonalcoholic (<4)	1994	837	50.8	630	38.5
	1996	376	55.1	330	44.5
2. Suggestive of Alcoholism (4)	1994	260	15.8	235	14.4
	1996	79	11.6	96	13.0
3. Alcoholic (5 or more)	1994	550	33.4	772	47.2
	1996	228	33.4	315	42.5
Total 2. & 3.	1994	810	49.2	1007	61.6
	1996	307	45.0	411	55.5

Note. * A score of 4 is categorized as "suggestive of alcoholism" and a score of 5 or more as "alcoholic."

As previously noted in the Method section, a large number of the 1994 trainees (92 females, 101 males) marked "no" to all the MAST items apparently believing they were indicating that they did not drink. To avoid this problem in the 1996 survey, a screening item was added prior to the MAST that asked if the respondent had ever drank any amount of alcohol. Respondents who indicated that they had never drank alcohol were directed to go to the next section and not complete the MAST. A total of 170 (18.5%) 1996 female and 203 (19.6%) male trainees marked "no" to the screening item. Additionally, because item 6 ("Do friends or relatives think you are a normal drinker?") was not used in 1996, the 1994 rates were recomputed and item 6 was excluded. Taken together, it is difficult to statistically compare the 1994 to the 1996 MAST distributions. The percentages shown in Table 9 do not include the 1994 trainees who marked "no" to all MAST items or the 1996 trainees who indicated that they had never drank any amount of alcohol. To compute the rates shown in Table 9, the respondents were placed into one of two categories, those who scored 5 or more points and those who scored 4 or less points. This was done to allow for a clear demarcation from Selzer's (1971) category of "alcoholic."

DISCUSSION

Demographically, the 1994 and 1996 trainee samples were similar. The main differences were that the 1996 trainees were slightly younger and (1) a smaller percentage were currently or had ever been married; (2) had a higher percentage of African-American women, Caucasian men, and Hispanics; and (3) had a higher percentage of participants from higher income families. It should be noted, however, that although statistically significant demographic differences were found between the 1994 and 1996 samples of trainees, the effect sizes were small, and therefore it is unlikely that the demographic differences between the two samples had a significant impact on prevalence rates. The 1994 and 1996 trainee samples were both generally comparable to the census data (U.S. Bureau of the Census, 1993); however, the trainee samples over represent African-American women, high school graduates, and women and men who are not married. Additionally, women from lower income families were over represented in the 1996 female trainee sample.

The mean age of the 1994 sample (20.3 years) was significantly higher than that of the 1996 sample (19.6 years), which suggests, along with the high rate of high school graduates, that the majority of the 1996 trainees entered basic training soon after graduating from high school in June, 1996. Since the 1994 data were collected from January through April of 1994, many of the 1994 trainees had probably graduated from high school in June, 1993. Although both samples had a similar percentage of participants who completed high school (about 96%), a larger percentage of the 1994 sample attended college after graduating from high school (39%) compared to the 1996 sample (14%). This difference may be partially due to the wording of the items used to assess educational level in the two surveys. In the 1994 survey, participants were told to write in the length of time they had been enrolled in college or the number of college courses they had completed. In the 1996 survey, participants were asked to indicate the highest year of school they had completed and to indicate whether they had earned an academic degree. Therefore, participants in the 1996 study who had completed less than a year of college or technical school were not included in the college attendance percentage.

The following discussion compares and contrasts the results of the 1994 and 1996 studies with those of previous studies conducted in the United States. Studies conducted with non-U.S. samples were excluded to minimize the confounding of comparisons by cultural differences (e.g., Koss, 1993).

Childhood Maltreatment

Childhood sexual abuse. The 1994 and 1996 studies were principally concerned with the prevalence of contact sexual abuse because abuse-related negative effects have been found to be associated with contact abuse but not with noncontact abuse (Collings, 1995; Haugaard & Emery, 1989; Peters, 1988). The term contact sexual abuse includes all experiences where physical sexual contact occurred, such as fondling, stroking of sex organs, attempted intercourse, and oral, anal, or vaginal intercourse, whereas noncontact sexual abuse is defined as experiences with exhibitionists or requests to engage in sexual activity in which no physical contact occurred. Unfortunately, it is not always possible to strictly compare contact rates because many studies only report combined rates for contact and noncontact abuse (Finkelhor, 1986; O'Donohue & Geer, 1992).

A wide range of prevalence rates for childhood sexual abuse are reported in the literature. The estimates differ according to the characteristics of the sample (e.g., college students versus psychiatric patients), the method used to collect data (e.g., interviews versus questionnaires), and the types of abuse included (contact versus noncontact). Estimates also vary within the same population and when the same methods of data collection are used. This is probably because estimates depend heavily on the criteria used to define the: (1) sexually abusive experiences, (2) upper age limit of a child, and (3) age differential between the respondent and the person with whom the experience occurred (Haugaard & Emery, 1989; Wyatt & Peters, 1986).

In an extensive review of the childhood sexual abuse prevalence literature, Peters et al. (1986) found little support for the notion that prevalence rates are strongly affected by demographic variables. However, the trainee samples are generally comparable to U.S. census data. Therefore, for descriptive purposes, the rates found for trainees may be optimally compared with those of community samples when the respondents are of a similar mean age and when analogous methodology was employed. College samples, however, usually use participants who are similar in age to U.S. Navy trainees, whereas community and other samples contain

participants of all ages. Despite the statistically significant demographic differences between the 1994 and 1996 trainee samples, the small effect sizes suggest that the differences probably did not have a serious impact on prevalence rates.

One of the first retrospective studies of childhood sexual abuse of college students was conducted by Finkelhor (1979), who used an instrument comparable to the one used in the 1994 survey of Navy trainees. Finkelhor surveyed a sample of 530 college students for histories of childhood sexual abuse using a criterion age of less than 17 years for when the abuse began. He found a combined rate of 19% for contact and noncontact abuse for women, and a combined rate of 9% for men. (In the 1994 Navy trainee study, the age criterion was less than 14 years for when the abuse began. In the 1996 trainee study participants were asked to indicate experiences prior to the age of 18, their age the first time it occurred, and the perpetrator's age) In the 1996 Navy trainee study, the rates for childhood contact sexual abuse occurring before age 17 were 41.9% for women and 18.2% for men. Finkelhor's (1979) rates for contact and noncontact abuse for college women are considerably less than the 33.2% rate found for the 1994 female trainee sample, and is less than but similar to the 12.2% rate found for the 1994 male trainees (Merrill et al., 1995) even though a younger age cut-off was used with the trainees. Data related to noncontact experiences were not collected in the 1996 Navy trainee study. Other studies of college samples have found combined rates for contact and noncontact abuse that range from 5% (Haugaard & Emery, 1989) to 24% (Fromuth & Burkhart, 1987) for men, and from 12% (Haugaard & Emery, 1989) to 22% (Fromuth, 1986) for women.

In summary, the combined rate for contact and noncontact abuse found for 1994 female trainees is considerably higher than that found in female college student samples, and the combined rate found for male trainees is at the upper end of the range reported for male college students. For both the male and female 1996 trainees, the childhood sexual abuse rates are considerably higher than those for male and female college students.

Studies of male college students have typically found a rate of about 5% for contact abuse only (e.g., Fritz, Stoll, & Wagner, 1981). The contact abuse rates found for female college students have ranged from 8% (Fritz et al., 1981) to 19% (Gold, Milan, Mayall, & Johnson, 1994). In the 1994 study, the contact abuse rate found for female trainees was 31.3% (prior to the age of 14), which is substantially higher than rates typically found for female college

students. The 1994 rate found for male trainees (12.7%) is also higher than that typically found in studies of male college students. In the 1996 study, the contact abuse rate was 26.8% for female trainees and 10.6% for male trainees. Using an age cut-off of 14 for the 1994 and 1996 trainees shows that the 1996 rates are slightly lower than those found in 1994.

The childhood sexual abuse rates found in studies that used community samples vary widely, which may be partially attributable to their methodological differences. For example, Kercher and McShane (1984) randomly sampled 1,056 Texas adults with valid driver's licenses via a mail survey and got a 47% return rate. They found that 11% of the women and 3% of the men reported a contact or noncontact childhood sexually abusive experience before the age of 18 (They did not specify an age differential between the respondent and the perpetrator.) The contact abuse rates for the 1996 sample of trainees prior to the age of 18 are 50.1% for women and 23.7% for men. Russell (1983) used in-person interviews with a community sample of 930 women in San Francisco. The refusal rate for her study was 50%, and she focused on abuse that began before the age of 14. Her study found a rate of 48% for contact and noncontact abuse combined; the rate for contact abuse only was 28%. A third study by Wyatt (1985), recruited 248 female participants by random digit dialing followed by face-to-face interviews. The completion rate for this study was 55% and voluntary peer experiences prior to the age of 13 were scored as sexual abuse. A rate of 47%, which included both contact and noncontact abuse, prior to age 13 was found (Wyatt, 1985).

For women, the lowest rate of 11% for community samples for noncontact and contact abuse was reported by Kercher and McShane (1984) and the highest rate of 36% for contact abuse, which occurred before age 13, was reported by Wyatt (1985). For men, prevalence rates for both types of abuse range from 3% (Kercher & McShane, 1984) to 16% (Timnick, 1985). Contact abuse rates found in community samples of men have not exceeded 5% (e.g., Fritz et al., 1981).

Taken together, for numerous methodological reasons, it is difficult to directly compare the prevalence rates found in previous studies with those found in the 1994 and 1996 samples of trainees. However, the prevalence rates for retrospective reports of childhood sexual abuse found in the 1994 and 1996 trainee data appear to be elevated when compared to the majority of studies that have used college and community samples.

Childhood physical abuse. The prevalence rates for childhood physical abuse in the present study relied upon retrospective self-reports of young adults. These reports must be deemed conservative because many children are abused prior to the age of 3 years, and events that occur prior to the age of 3 years may not be accurately recalled (Berger, Knutson, Mehm, & Perkins, 1988). This effect probably moderated the reports of physical abuse and is important because Gil (1970) estimated that about 33% of physically abused children are less than 3 years old at the time of the abuse. In contrast, Straus and Gelles (1990) used a broad definition of physical child abuse and stated that about 93% of parents of children 3 years old and younger reported abusing their children at least once during the previous year, usually by hitting.

Although a number of studies have collected retrospective childhood physical abuse data from young adults using the CTS or similar instruments (for reviews see Stark & Flitcraft, 1991; White & Koss, 1993), few of the studies used methods similar to those used in the present study. However, three studies were found that used methodology similar to that of the 1994 and 1996 studies, and the results of those studies may be compared with the 1994 and 1996 Navy trainee results. The first study, Berger et al. (1988), surveyed a sample of 4,695 Iowan college students (mean age = 18.6 years) using an instrument similar to the CTS. Berger et al. (1988) used "rather stringent" criteria for childhood physical abuse in this investigation and found a total abuse rate of 9% for women and men combined (rates were not reported separately for women and men). The present study used the relatively more liberal criteria of Gelles and Straus (1988) and found combined rates of 40.2% (1994) and 38.0% (1996) for the severe violence subscale and 26.8% (1994) and 25.2% (1996) for the very severe violence subscale for women and men. For contrast, the rates for the individual items used by Berger et al. (1988) would be a better comparison with the present study than would the overall abuse rates. Unfortunately, the item frequencies reported by Berger et al. (1988) are not mutually exclusive. The Berger et al. (1988) item with the highest frequency rate, "Hit with objects," is similar to the Straus (1979) item, "Hit or tried to hit you with something." This item is part of the severe violence subscale and the Berger et al. (1988) rate for this item was 34.7%. The rate for the trainees for this item was 33.8% for 1994 and 31.9% for 1996. Straus, Gelles, & Steinmetz (1988) reported physical child abuse rates for a nationally representative sample of intact families with children from 3 to 17 years of age (see Table 10). In their study parents of intact families were asked about the

methods they had used to resolve conflicts with their children. Straus et al. (1988) stated that single-parent families are more prone to use violence and therefore their rates may be underestimates of parental use of violence. The third study (Muller, 1991b) asked a sample of college students consisting of 595 women (mean age = 18.89, $SD = 1.8$) and 252 men (mean age = 19.3, $SD = 1.6$) to recall what methods their parents had used with them to resolve conflicts prior to the age of 17 (see Table 10). Parental marital status of the Muller (1991a) subjects is not known, however, 57.2% of the 1994 trainees and 42.4% of the 1996 trainees reported their parents were either divorced or separated.

For descriptive contrasts, Table 10 presents the frequency counts for the items that comprise the Gelles and Straus (1988) very severe violence subscale for the 1994 and 1996 trainee samples, the Muller (1991b), and Straus et al. (1988) studies. Respondents who reported one instance of a behavior were included in the frequency computation for the percentages in Table 10. Therefore, the total is less than the sum of the individual items because some respondents reported the occurrence of more than one behavior. All percentages for the Muller (1991b) and present study are for the total samples.

As can be seen in Table 10, it appears that the 1994 and 1996 trainees, as a group, may have been subjected to harsher parental abuse, especially being "beaten up," in comparison with Muller (1991b) subjects. A higher percentage of the female trainees compared to the male trainees reported being beaten up, with the very severe violence subscale frequency for the female trainees being higher than that of the male trainees. This is contrary to the findings of most studies which have found that boys are at a higher risk of physical abuse than girls (Straus & Gelles, 1990).

Table 10

Prevalence Rates for the CTS Very Severe Violence Items and Subscales for Parent to Child Reports of Basic Trainees, College Students, and Parents

<i>Item</i>	<i>Trainee Sample</i>	<i>Trainees</i>		<i>Muller*</i>		<i>Straus**</i>
		<i>Women</i>	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>et al.</i>
		<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>
<hr/>						
Kicked, bit or hit you with a fist						
	1994	24.1	22.7	16.0	20.2	8.0
	1996	23.0	22.5			
Beat you up						
	1994	13.8	11.2	3.7	4.8	4.0
	1996	13.6	10.8			
Burned or scalded you						
	1994	2.9	5.3	1.3	2.0	--
	1996	3.4	4.4			
Threatened you with a knife or gun						
	1994	5.4	5.9	1.2	2.0	3.0
	1996	4.5	6.3			
Used knife or gun against you						
	1994	2.0	3.9	2.9	5.6	3.0
	1996	2.0	5.5			
Very severe violence subscale frequencies						
	1994	27.7	25.8	19.2	24.2	--
	1996	25.2	25.3			
<hr/>						

Note. * Muller, 1991b. ** Straus et al., 1980.

Finally, the determination of child physical abuse by child protection agencies is primarily dependent upon the observation of injury. The CTS subscales do not provide for a legal determination of child abuse; the subscales permit the measurement of behaviors that are consistent with the legal definition of assault. In addition to being consistent with the legal definition of assault, the rationale for the measurement of behaviors instead of injuries are: (1) they reflect humane values, (2) an association exists between injury and assault, (3) they provide for a more reasonable measure of rates, (4) psychological injury may occur even without physical injury, and (5) they provide data for planning prevention programs (Straus & Gelles, 1990).

Intimate Partner Physical Violence

Numerous studies have collected data from heterosexual intimate partners, both unmarried and married, using the CTS IP version or a comparable instrument (for reviews see Stark & Flitcraft, 1991; White & Koss, 1993). Because these studies used different modifications of the CTS and different methodology, it is not possible to directly compare their results with those of the present study. For example, Riggs (1993) and Riggs et al. (1990) asked participants to report only physically aggressive behaviors that occurred during their present relationship, and Riggs (1993) added the item "physically force partner to have sex" to his instrument and the computation of his violence subscale. Also, two of the studies asked participants to report aggression that occurred in the previous year (O'Leary et al., 1989; White & Koss, 1991). White & Koss (1991) also added the CTS verbal aggression subscale item "Threatened to hit or throw something" to their computation of their "physical aggression" scale. In three other studies, respondents were asked to report the occurrence of physically aggressive acts occurring in all past relationships (i.e., they did not specify a reporting period), and used the same CTS items to compute their violence subscale (Arias, Samios, & O'Leary, 1987; Lane, Gwartney-Gibbs, 1985; Sigelman, Berry, & Wiles, 1984). With the exception of the O'Leary et al. (1989) study, which used a community sample, all of the studies reported in Table 11 used samples of college students. Additionally, the White and Koss (1991) study is the only study that used a nationally representative sample of college students. The other studies used convenience samples or randomly sampled within a select geographic or university area.

Table 11 is presented to allow a comparison of CTS IP data for Navy trainees, college students, and a community sample. As can be seen in Table 11, rates of reported inflicted ("I did") physical aggression ranged from 35% to 52% for women and 18% to 54% for men. Rates of sustained ("He/She did") physical aggression ranged from 29% to 48% for women and from 27% to 59% for men. Except for the White and Koss (1991) and Sigelman et al. (1984) studies, a higher percentage of women reported physical aggression against an intimate partner than did men. Three of the studies reported that men sustained more physical aggression than women, while two studies reported women sustaining more physical aggression. Of the seven studies that reported CTS IP totals, two studies (Arias et al., 1987; Sigelman et al., 1984) reported a higher rate of inflicted aggression for women than was found for the 1994 female trainee sample, and

two studies (Sigelman et al., 1984; White & Koss, 1991) reported a higher rate for men than was found for the 1994 male trainee sample. Two studies (Lane & Gwartney-Gibbs, 1985; Sigelman et al., 1984) reported a higher rate for women and two studies (Arias et al., 1987; Sigelman et al., 1984) reported a higher rate for men for sustaining physical aggression than did the same sex 1994 trainee samples. The results differ for the 1996 sample of trainees. While the same two studies (Arias et al., 1987; Sigelman et al., 1984) reported a higher rate than the 1996 female sample of trainees for the infliction of violence, all of the college student samples reported a higher rate for infliction of violence than the 1996 male trainee sample. Compared to the 1996 sample of trainees, two studies reported lower rates for the receipt of violence for women (Riggs, 1993; White & Koss, 1991) and for men (Lane & Gwartney-Gibb, 1985; Riggs et al., 1990).

Table 11

CTS IP Physical Violence Subscale Frequency Rates for Basic Trainees, College Students, and a Community Sample

Sample	<i>"I did"</i>		<i>"They did"</i>		N	Type of Rate***
	% F*	% M**	% F	% M		
College students						
Arias et al. (1987)	49	30	38	50	272	P
Lane & Gwartney-Gibbs (1985)	41	30	42	34	325	P
Riggs (1993)	36	22	29	27	651	I
Riggs et al. (1990)	39	23	-	-	408	I
Sigelman et al. (1984)	52	54	48	59	504	P
White & Koss (1991)	35	37	32	39	4,707	I
Unweighted mean percent	41	33	38	42		
Community sample						
O'Leary et al. (1989)	44	31	-	-	544	I
Trainees						
1994	48	35	41	45	3,776	P
1996	44	18	33	36		

Note. * F = females. ** M = males. *** P = prevalence rate ; I = incidence rate.

Table 12 presents selected individual CTS IP item rates for the 1994 and 1996 samples of trainees and for college student samples (O'Leary et al., 1989; Pan et al., 1994; Sigelman et al., 1984). These data are provided for comparison purposes only. O'Leary et al. (1989) collected data from a community sample of 272 women and 272 men who were engaged and later got married (see Table 12). The mean educational level for both women and men was 14.7 years; the mean age was 23.6 for women and 25.3 for men. The O'Leary et al. (1989) rates are a combination of self-reports of the respondent's behaviors and reports of the respondent's behavior by a partner during the year before marriage. The CTS data collected from intimate partners by Pan et al. (1994) is of interest because they used a sample of U.S. Army personnel who were either married or cohabiting and had been members of the military for about 8 years (see Table 12). Their sample was older than the trainees in the 1994 and 1996 samples of trainees: the mean ages for their female and male subjects were 27.3 years and 29.3 years, respectively. Also, the Pan et al. (1994) study had a larger percentage of African-Americans than did the 1994 and 1996 trainee samples (see Table 1). An important difference between the intimate partner data collected for the present study compared to the O'Leary et al. (1989) and the Pan et al. (1994) studies is that these studies asked participants to report behaviors during the previous year, whereas the present study did not ask participants to report behaviors for any specific time period (i.e., participants were asked to report behaviors that had ever occurred). However, Sigelman et al. (1984) asked participants to report behaviors that had ever occurred and they reported higher violence subscale frequency rates than did the present study. Sigelman et al. (1984) collected CTS IP data from a convenience sample of 496 (384 women and 112 men) college students at Eastern Kentucky University. The mean age of the Sigelman et al. (1984) participants was 21.4 years and 89.3% were Caucasians.

Table 12

CTS IP Physical Violence Subscale Item Rates for Basic Trainees and Comparison Groups

<i>Item</i>	<i>Trainee</i>	<i>Trainees</i>		<i>Pan</i>		<i>O'Leary</i>		<i>Sigelman</i>	
	<i>Sample</i>	<i>% F*</i>	<i>% M**</i>	<i>% F</i>	<i>% M</i>	<i>% F</i>	<i>% M</i>	<i>% F</i>	<i>% M</i>
Self, "I did"									
Threw something at her/him	1994	18.8	12.8	24.1	10.7	12.6	6.8	27.0	18.0
	1996	24.5	7.2						
Pushed, grabbed, or shoved	1994	32.7	26.3	29.7	26.9	32.2	27.5	28.8	42.3
	1996	34.5	20.9						
Slapped	1994	29.2	13.1	17.3	12.5	20.7	7.7	34.5	17.1
	1996	26.8	7.7						
Kicked, bit, or hit with fist	1994	20.5	9.9	15.1	6.4	12.6	3.4	18.4	9.0
	1996	20.2	5.4						
Beat up	1994	5.9	6.8	3.9	4.5	1.1	0.0	1.3	2.7
	1996	4.7	4.1						
Threatened with a knife or gun	1994	4.8	4.9	7.4	2.9	0.0	0.0	1.3	1.8
	1996	4.4	3.0						
Partner, "He/She did"									
Threw something at you	1994	15.3	19.3	16.8	21.6	-	-	19.5	31.2
	1996	14.8	24.2						
Pushed, grabbed, or shoved	1994	33.8	29.0	32.3	23.6	-	-	42.3	37.5
	1996	33.3	30.6						
Slapped	1994	18.7	27.7	16.8	19.1	-	-	20.4	39.3
	1996	12.7	32.7						
Kicked, bit, or hit with fist	1994	15.9	20.1	14.0	14.6	-	-	13.3	27.7
	1996	10.9	22.8						
Beat up	1994	8.8	6.9	9.1	4.2	-	-	3.6	3.6
	1996	7.5	4.2						
Threatened with a knife or gun	1994	6.4	6.4	6.3	6.4	-	-	3.1	2.7
	1996	5.5	3.7						

Note. * F = females. ** M = males.

In summary, with the exception of the 1996 male trainees, the total percentage of trainees reporting physical aggression in intimate relationships is higher than most of the rates found in the literature. The trainees reported experiences that occurred in intimate relationships prior to entering the Navy (prevalence rates), while the participants in most other studies reported experiences that occurred during the previous year (incidence rates). Generally, the individual item rates for 1994 trainees are higher than those found by O'Leary et al. (1989) and are similar

to those of Pan et al. (1994). Overall, the rates for the milder forms of violence (throwing, pushing, slapping) for the 1994 trainees are lower than those reported by Sigelman et al. (1984) but the rates for more severe forms of violence (kicked, beat up, threatening with a knife or gun) are higher among the trainees. The results for the 1996 sample of trainees are mixed. The 1996 female sample of trainees appear to be similar to the 1994 sample, however, the 1996 female sample reported a lower percentage of initiating and receiving more severe violence. The 1996 male sample reported initiating a lower percentage of all forms of violence but reported being the recipient of a higher percentage of less severe forms of violence (throwing, pushing, slapping), a higher percentage of being "kicked, bit, or hit with a fist", and a lower percentage of other more severe forms of violence (e.g., beat up, threatened with a knife or gun, etc.).

Although women have been found to be as violent or more violent than men in intimate relationships, the negative effects of the violence are more pronounced for women (Stets & Straus, 1990). In the present study physical injury by an intimate partner was reported by a higher percentage of 1994 (24%) and 1996 (19.2%) female trainees (24%) than by the female college students in Makepeace's (1986) study (8.6%). Likewise, the physical injury rate for 1994 (9.3%) and 1996 (10.7%) male trainees was higher than the 1.5% rate found by Makepeace (1986) in a study of male college students. (Neither study used samples of couples reporting on the same experiences.)

Female Sexual Assault

Five SES items were used in the 1994 study and 10 items were used in the 1996 study to determine whether female respondents had had a sexual experience with a man who used alcohol or drugs, threats of force, or physical force to attempt or to achieve oral, anal, or vaginal penetration. Although it cannot be determined conclusively that the female trainees who reported experiences coded as rape were actually raped, the experiences they reported meet a legal definition of rape. Legally, rape includes acts of nonconsensual penetration obtained by physical force, by threat of bodily harm, or when the victim is incapable of giving true consent (Koss, 1993; Searles & Berger, 1987).

Prevalence estimates of rape and attempted rape vary as a function of the methodology employed, characteristics of the sample, and the social or sociocultural climate of the geographic area (George, Winfield, & Blazer, 1992; Koss, 1993). Therefore, the following overview of the

literature will briefly relate the results of a study of high school students and studies of college students and community samples that have and have not used the SES.

Acquaintance rape was investigated in a group of 137 (grades 9-12) female high school students in Louisiana by Davis, Peck, and Storment (1993). They used an in-house developed instrument and reported a 100% response rate, with 26% of the women indicating they had experienced an acquaintance rape.

Many studies of sexual assault among college students have used in-house developed instruments, therefore, it is difficult to compare the rates they have found. For instance, Soeken and Damrosch (1986) surveyed 368 nursing students in Baltimore, Maryland, and reported a rape rate of 15%. Using college introductory psychology students as subjects, Muehlenhard and Linton (1987) reported a rape rate of 14.7% at a "large, southwestern, public university." Alzenman and Kelley (1988) mailed surveys to 400 female students at Rutgers University City, New Jersey. They had a 51% response rate and stated that 29% of the respondents reported having an experience of acquaintance rape, while 51% "successfully avoided" an acquaintance rape (these rates are not mutually exclusive).

As previously indicated, comparison data from Koss et al. (1987a, 1987b) are shown in the Results section, Table 7. This study of a nationally representative sample of female college students used the same instrument, the SES, as the present study. A comparison of sexual assault rates for the trainee samples with this college sample is valuable because they used the same instrument and the subjects were of a similar age. However, many of the trainees had not attended college, and therefore a comparison of rates with community samples is also of value. As can be seen in Table 7, the rates for rape found in the 1994 (36.1%) and 1996 (26.0%) trainee samples were substantially higher than the rate of 15.4% found by Koss et al. (1987a); however, the rates for attempted rape for the 1994 (7.7%) and 1996 (7.6%) trainee samples were less than that reported by Koss et al. (1987a) (12.1%). The lower rates found among trainees for attempted rape may be attributable to methodological differences (see Methods section). Since these rates are mutually exclusive, it appears that the percentage of female rape victims among trainees is significantly larger than that among these college students. The females in the Koss et al. (1987a) study reported a similar rate of coercive behavior (11.6%) as was found in the 1996 sample of female trainees (9.4%).

Although a national survey of rape prevalence has never been conducted, rape incidence estimates are collected in a yearly National Crime Survey conducted by the Bureau of Justice Statistics (BJS). Their combined rate for attempted and completed rape is 1.2 per 1,000 women and girls (BJS, 1991). These rates are 10 to 15 times lower than those found in college and community samples collected by independent researchers, which is probably attributable to differing methodologies (Koss, 1992).

Russell (1984) surveyed a community sample of 930 women in San Francisco. The refusal rate for her study was 50%. She reported prevalence rates of 19% for completed rape and 31% for attempted rape by men other than husbands. Russell's (1984) rates were for lifetime prevalence whereas the present study asked about assaults since the age of 14. Additionally, she used in-person interviews with an average length of 1 hour and 20 minutes.

In a telephone survey of 601 women from the ages of 18 to 29 years, Kilpatrick et al. (1985) reported a rate of 6.3% for attempted rape and 8.6% for rape. Kilpatrick et al. (1985) used an instrument developed in-house and had a completion rate of about 78%. All of the respondents lived in Charleston County, South Carolina. Similarly, Sorenson, Stein, Siegel, Golding, and Burnam (1987) used in-person interviews to gather sexual assault data from about 1,644 women from the ages of 18 to "65+" in Los Angeles, California. They defined sexual assault as any unwanted touching of a sexual nature, including sexual intercourse, and reported a rate of 13.5%. Using "nearly identical measures," George et al. (1992) found a rate of sexual assault of 5.9% for 1,157 women from the ages of 18 to 64 living in North Carolina. Finally, Wyatt, Guthrie, and Notgrass (1992) used the Wyatt Sex History Questionnaire to survey, in-person, 248 randomly selected women in Los Angeles County, California. Wyatt et al. (1992) found a rate of 22.2% for women, 18 to 36 years old, who reported experiencing at least one incident of attempted or completed rape since the age of 18.

The foregoing overview of the sexual assault prevalence literature shows that other studies have found rates for rape that vary from less than 5.9% (George et al., 1992) to 29% (Alzenman & Kelley, 1988), while rates for attempted rape vary from 6.3% (Kilpatrick et al., 1985) to 51% (Alzenman & Kelley, 1988). No other study has reported a rate rape higher than the 36.1% found in the 1994 trainee sample, and the 26.0% rate found in the 1996 sample is at the high end

of reported rates. Many other studies (Alzenman & Kelley, 1988; Koss et al., 1987a; Russell, 1984), however, have found higher rates for attempted rape than the rates found in the 1994 and 1996 samples of trainees.

Male Sexual Aggression

Table 8, in the Results section, contains data related to self-reported male sexual aggression among trainees and college students. The present study and the Koss et al. (1987a) study both used the SES to measure male sexual aggression since the age of 14. As can be seen in Table 8, 40.7% of the 1994 male trainees, 33.0% of the 1996 male trainees, and 24.9% of the college students in the Koss et al. (1987a) sample admitted to behaviors that are categorized as sexually aggressive. While more than 1 in 3 of the 1994 and about 1 in 3 of the 1996 male trainees admitted engaging in a behavior classified as unwanted sexual contact, rape, or attempted rape, about 1 in 4 of the male college students in the Koss et al. (1987a) study reported the same behaviors.

The rate for attempted rape among the 1994 (3.5%) and 1996 (2.9%) male trainees is about the same as that among the Koss et al. (1987a) respondents (3.3%), but the rate for completed rape for both the 1994 (11.3%) and 1996 (9.2%) is more than twice that of the Koss et al. (1987a) college sample (4.4%). Overall, the male trainees (about 1 in 8) appear to have engaged in significantly more sexually aggressive behaviors that meet a legal definition of rape than did the male college students (1 in 13). In a related study that used different instrumentation, Muehlenhard and Linton (1987) found that 7.1% (1 in 14) of 294 male college students enrolled in a large, southwestern, public university reported engaging in a behavior defined as rape.

Overall, this brief review of the literature shows that a comparatively large percentage of male trainees self-reported engaging in at least one behavior that meets the legal definition of rape. A determination cannot be made that the male trainees categorized as self-reporting an act of rape actually committed rape.

Alcohol Use and the Michigan Alcoholism Screening Test (MAST)

High rates of alcohol use and the negative health consequences of alcohol misuse among Navy personnel other than trainees has been well documented (Bray et al., 1983, 1986, 1988, 1992; Durning & Jansen, 1976; Kolb & Gunderson, 1981, 1983). For example, in 1980, 90% of Navy personnel said they drank alcohol, with 78.3% of the drinkers categorized as "moderate"

to "heavy" drinkers (Bray et al., 1980, cited in Bray et al., 1992). More recently, Bray et al. (1992) found that 81% of Navy men and 72% of Navy women drink alcohol, while the comparable percentages for civilians are 53% of women and 68% of men. Both samples were from 18- to 55-years-old. For active duty men and women, 17- to 25 years-old, Bray et al. (1992) reported that 81% drink alcohol, which declined to about 73% for those members 35 and older, with an overall rate of 61% for "moderate" and "heavy" drinking. Although this is a high rate, Bray et al. (1992) stated that the percentage of personnel who drink alcohol, in any amount, and the percentage who engage in heavy drinking has significantly decreased since 1980. From 1980 to 1992 the percentage of Navy personnel that drank alcohol declined from 90% to 77%, while moderate/heavy drinking declined from 78% to 61%.

The MAST (Selzer, 1971) was used in the present study as a gauge of alcohol-related problems among Navy trainees prior to entering the Navy. The MAST has well-established psychometric properties and allows respondents to report alcohol-related problems, scaled via specific events and behaviors instead of by units of alcohol consumption. Drinking consumption histories are collected by many studies; however, accurate drinking histories are difficult to obtain. Problem drinkers tend to report inaccurate levels of consumption, and a consumption oriented instrument with proven psychometric properties does not exist (Embree & Whitehead, 1993; Watson, Tilleskjor, Hoodecheck-Schow, Pucel, & Jacobs, 1984). Individuals with potential alcohol problems who may need further evaluation can be screened with the MAST. Additionally, screening instruments such as the MAST which yield more false positives than false negatives, are desirable because they are less likely to misclassify respondents with an actual problem (Storgaard et al., 1994).

Only two studies were located that used the MAST to screen groups similar in age to Navy trainees. Table 13 summarizes the MAST results for trainees and for two studies of college students (Favazza & Cannell, 1977; Silber, Capon & Kuperschmit, 1985). The data presented in the studies of college students do not allow for a breakdown of the percentage of those who scored 5 or more points on the MAST. In both the 1994 and 1996 samples, the percentage of trainees who scored 4 or more points on the MAST was more than twice as high as that for the college students. However, these studies used convenience samples and only collected data at two colleges; such samples are probably not representative of all college students. In a study of

alcohol consumption among college students attending 140, four-year colleges, Wechsler, Davenport, Dowdall, Moeykens, and Castillo (1994) found that the level of "binge drinking" varies from 1% to 70%, depending on the type and location of the college.

Table 13

MAST Scores ≥ 4 for Basic Trainees and College Students*

<i>Sample</i>	<i>Study</i>	<i>n</i>	<i>M Age</i>	<i>%</i>
College Students				
	Favazza & Cannell:	245	20.0	32
	Silber et al.:	<u>200</u>	<u>22.0</u>	<u>17</u>
	Total:	445	21.0	25
Trainees				
	1994	3,284	20.2	55
	1996	1,424	19.6	50

Note. * Item 6 of the MAST was not used to compute trainee scores.

Despite the label of "alcoholic" that Selzer (1971) attached to a score of 5 or more on the MAST, it is not possible to determine what percentage of the trainees would meet the clinical criteria for alcohol dependence or alcohol abuse. MAST scores, however, have been shown to be superior valid measures of alcohol misuse when compared to studies that have used the Diagnostic and Statistical Manual of Mental Disorders (DSM-III) criteria (Storgaard et al., 1994). The results of the Storgaard et al. (1994) review of 15 studies that used the MAST revealed a mean predictive positive value (PVpos) of about .64. PVpos is the ratio of true positive results to all positive results. In summary, probably not all trainees who scored 5 or more points on the MAST meet the DSM-III criteria for alcohol dependence or alcohol abuse. However, it can reasonably be assumed that a high percentage of trainees have had problems associated with the consumption of alcohol at some time in their lives prior to entering the Navy.

Comparisons of the results of the present study with the results of studies conducted with civilian samples are difficult because of the unique instrumentation and sampling strategies used in each study. Nevertheless, two large-scale studies have collected descriptive data from groups, similar in age to the trainees, that allow for simple contrasts with trainee alcohol use rates. The first study, Johnston, O'Malley, and Bachman (1991), surveyed a nationwide random sample of more than 15,000 high school seniors and found that 77% drank alcohol and about 30% engaged in binge drinking. Johnston et al. (1991) defined binge drinking, for both men and women, as consuming 5 or more drinks in a row during the previous two weeks. A second study (Wechsler et al., 1994), surveyed a nationally representative sample of 17,096 students at 140 colleges. Wechsler et al. (1994) reported that 84% of the students drank alcohol while 44% engaged in binge drinking, defined as consuming 4 (women)/5 (men) or more drinks in a row, in the previous two weeks. The binge drinkers were found to have more injuries, missed classes, unprotected sex, and problems with law enforcement than did nonbinge drinkers. Wechsler et al. (1994) also found that binge drinkers are 2-3 times more likely than nonbinge drinkers to damage property, physically assault, harass, and disturb the sleep of classmates

Table 14 presents a descriptive comparison of the results of the Johnston et al. (1991), Wechsler et al. (1994), and the present study. Because of the different interpretations that may be given to the questions asked in the studies, a direct comparison of rates of self-reported drinking is not possible. The percentage of trainees that drink to intoxication was computed by collapsing the two groups that, in response to the question, "Which statement generally describes you when you drink? (Assume you are not driving), said that, "I get drunk but generally stay in control," or "I get wasted." Categories 1 and 2 for the trainees in Table 14 may contain the same type of drinkers that are contained in categories 1 and 2 of the high school and college students. Both are subjective reports of drinking, with the trainees reporting the effect of their drinking, while the students reported the quantity and the effect is inferred. Intoxication is the inferred effect of consuming 5 (men)/4 (women) or more alcoholic drinks in a row. Overall, a significantly smaller percentage of the 1994 female ($\chi^2[1, n = 2330] = 66.47, p < .01, w = .17$) and male ($\chi^2[1, n = 2378] = 27.74, p < .01, w = .11$) trainees reported drinking to intoxication compared to the 1996 trainees. The binge drinking rates for the 1996 trainees are very similar to those of the college students but higher than those of the high school students.

Table 14

Comparison of Basic Trainees' and Students' Alcohol Use

<i>Sample</i>	<i>Category</i>	<i>Trainee Sample</i>	<i>Women %</i>	<i>Men %</i>	<i>Total %</i>
Trainees					
	1. Drunk or wasted				
		1994	20	30	25
		1996	36	41	38
	2. Get a buzz but not drunk				
		1994	47	43	45
		1996	45	38	42
	3. Nondrinkers				
		1994	33	26	30
		1996	20	21	20
High School Students (12th Graders)*					
	1. Binge drinkers		21	38	29
	2. Nonbinge drinkers		55	41	48
	3. Nondrinkers		24	21	23
College Students**					
	1. Binge drinkers		39	50	44
	2. Nonbinge drinkers		45	35	40
	3. Nondrinkers		16	15	16
1996 Trainees					
	1. Binge drinkers		40	48	44
	2. Nonbinge drinkers		42	33	38
	3. Nondrinkers		18	20	19

Note. *Johnston et al. 1991; **Wechsler et al. 1994.

The comparison of trainees' alcohol consumption and alcohol-related problems to those of students is problematic for many reasons. For example, the trainee and college student populations may come from different environments. The possible effect of environmental influences on drinking behavior has been summarized by Wechsler et al. (1994) who stated,

"...colleges may create and unwittingly perpetuate their own drinking cultures through selection, tradition, policy, and other strategies" (p. 1677). In support of the Wechsler et al. (1994) contention, Johnston et al. (1991) found college-bound seniors reported less binge drinking than did the non-college-bound students. However, after entering college, college students' rates of binge drinking exceeded those of the non-college-bound students. Although about 38% of the 1994 trainees and 14% of the 1996 trainees had attended college, most of the trainees did not, which indicates that most of the trainees who drink were not influenced by a college environment. The results of the MAST and the two items that measured the frequency of alcohol use and its subjective effect suggest that, as a group, alcohol misuse and alcohol-related problems among trainees are at a substantial level.

A popular belief is that the military culture and stresses of military life encourage alcohol use (Holcomb, 1982; Polich, 1979). The results appear to partially support this hypothesis. The Bray et al. studies found that more Navy personnel, other than trainees, drink alcohol and at a higher level than a sample of civilians. The present study found that trainees' alcohol consumption is comparable to that of college students and higher than that of high school students. Finally, the larger percentage of nondrinkers found among the recruits compared to the Bray et al. studies suggests that many trainees begin drinking after entering the operational Navy. All in all, it appears that a percentage of Navy personnel who drink alcohol may be an outgrowth of a history of violence and their lack of coping skills combined with the demands and stressors of Navy life.

However, almost 20 years ago Durning and Jansen (1976) surveyed 2,045 male basic trainees and found that 67% reported either "heavy intake," "binge," or "high consequence" drinking. Durning and Jansen (1976) concluded that "... whatever drinking climate may exist within the Navy is likely to be a function of the individuals recruited into the service rather than the organizational structure and mission of the Navy per se." The present study's MAST results lend support to Durning and Jansen's (1976) conclusions. The results of the present study show that the majority of trainees have had alcohol-related problems prior to entering the Navy. It may be that after college students have finished their schooling they discontinue drinking at problematic levels. On the other hand, trainees with histories of problems related to alcohol use may continue to misuse alcohol after entering the Navy.

The long-term adverse medical consequences of alcohol misuse among Navy personnel were revealed by Kolb and Gunderson (1983) who found that problem drinkers spent twice as many days in the hospital, for all reasons, compared to controls for their first 12 years of naval service. A conclusion of Kolb and Gunderson's (1981) study was that if alcohol abusers could be identified and treated early in their careers, demonstrable savings in health care and the avoidance of debilitating diseases would occur.

Taken together, the foregoing literature review and the results of the present study suggest that the two superficially opposing ideas that (1) personnel who misuse alcohol are recruited and not created by the Navy (Durning & Jansen, 1976), and (2) the military environment stimulates the misuse of alcohol (Holcomb, 1982; Polich, 1979) may both be partially correct. Regardless of the precision of the estimates, the results of the present studies show that a substantial number of trainees enter the Navy with alcohol misuse histories. These difficulties may continue through their tenure in the Navy with negative repercussions for the individual and the Navy. Further, although the rate of alcohol and heavy drinking has decreased significantly since 1980, a substantial number of Navy personnel continue to drink alcohol at levels that would be expected to have adverse medical, psychological, occupational, and interpersonal consequences (Bray, Guess, Marsden, & Herbold, 1989).

Of greater concern, for the purposes of the present study, are the MAST results of the trainees. The rationale for using the MAST in the present study was to gain a psychometrically valid assessment of trainees' life histories of problems with the use of alcohol. The goal of using the MAST was not to provide a categorical, alcoholic versus nonalcoholic, detection of trainees but rather a dimensional assessment of their involvement with alcohol. Regardless of whether the trainees who scored in the "suggestive alcoholism" or "alcoholic" range on the MAST would be clinically diagnosed as "alcoholic," these trainees reported having had a range of problems related to alcohol use that is reflected in their MAST scores. Therefore, the MAST results may provide a measure of the well-established association of alcohol misuse with individuals who have been the victim and/or perpetrator of abusive behavior. Future reports will detail the relationship of MAST scores to trainees who have perpetrated or been the victims of abuse.

In the 1994 and 1996 trainee surveys, more than 20% of the males and females reported drinking to intoxication when they drank alcohol. This also provides further evidence for a

conservative inference made from the MAST results, using the PVpos value as a multiplier, that more than 20% of the female and male trainees evidence markers for alcohol dependence and/or alcohol abuse. The results of this study combined with the results of previous studies (Bray et al., 1992; Kolb & Gunderson, 1983) strongly suggest that a significant number of Navy personnel drink alcohol at levels detrimental to the mission of the Navy, their health, and their interpersonal relationships. The development of assessment and intervention programs at the trainee level would allow for the early identification and treatment of trainees with alcohol-related problems. For example, alcohol misuse has been shown to be a factor in the perpetration of spouse abuse (O'Leary & Murphy, 1992), child sexual abuse (National Research Council, 1993), child physical abuse and neglect (Kelleher, Chaffin, Hollenberg, & Fischer, 1994), and adult sexual assault (White & Humphrey, 1994a). Alcohol misuse may also be a sequela of being a victim of child physical abuse (Straus & Kantor, 1994), child sexual abuse (Green, 1993), and adult sexual assault (White & Humphrey, 1994a).

Conclusions

The high rates of childhood sexual and physical victimization and adult victimization and perpetration of abusive behaviors found among female and male basic trainees have serious implications for the delivery of general medical and psychological health care services to Navy personnel. Additionally, the long-term consequences of the abusive experiences reported by trainees also may have a significant impact on attrition, job performance, retention, and interpersonal behavior.

For example, women with a history of victimization require an increased amount of health care. Indeed, victimization has been identified as one of the factors responsible for excessive health care costs in the United States (Koss, Koss, & Woodruff, 1991), and intimate violence tends to show a repetitive pattern (Straus & Gelles, 1990). Victims typically do not volunteer information about abuse, and health-care providers often neglect to ask. Consequently, failure to diagnose victimization often perpetuates the problem and multiplies the impact on health-care requirements (Koss, Woodruff, & Koss, 1990). The establishment of services and interventions for victimized personnel would decrease human suffering and the use of medical, psychological, and administrative facilities. Additionally, the productivity of victimized personnel may increase.

In community samples, victimization has been shown to have an acute and chronic negative impact on health (Koss et al., 1991; Koss et al., 1990). Further, stress may exacerbate the somatic and psychological consequences of victimization. More specifically, stress has also been shown to mediate the effects of childhood trauma on the recurrence of somatic and psychological illnesses (e.g., Kessler & Magee, 1994). In addition, somatic and psychological trauma incurred through victimization may recur chronically for unknown reasons (e.g., Briere & Runtz, 1993; Koss & Heslet, 1992). Therefore, it would seem reasonable to conclude that basic trainees with a history of victimization, all of whom will be exposed to numerous novel environmental, psychosocial, and job stressors, will have an increased need for unique medical and psychological services. Although stress may mediate some victimization-related somatic and psychological conditions, victimization may be the more important causal factor (Trickett & Putnam, 1993).

The relatively high rate of male perpetration of sexual assault found in the 1994 and 1996 samples of trainees, combined with the high rate of histories of alcohol misuse, indicate a need for early interventions to prevent future aggression. For example, White and Humphrey (1994a) have shown that a history of sexual aggression predicts future aggression and that past use of alcohol/drugs during a sexual assault predicts future use. White and Humphrey (1994a) found that during sexual assault, the perpetrator and victims were using alcohol and/or drugs 51.5% of the time, while for consensual sex, the individuals were both using alcohol and/or drugs only 16.1% of the time. When only one person was using alcohol/drugs it was almost always the perpetrator. Because only about 5% of rapes are reported to police (Koss et al., 1987a), early identification and treatment of sexually aggressive men may be the most practical option for reducing recidivism (Pithers, 1993).

Previous studies have shown that victims of abusive behavior are at a high risk of incurring somatic and/or psychological problems that require treatment by health care professionals. Untreated, the effects of traumatization may interfere with training and the performance of job duties. Without intervention, perpetrators of both sexual and physical aggression are at a high risk for repeating their behavior. Also, the high levels of alcohol use and abuse among trainees may be related to their histories of victimization and may place the trainees at greater risk of adverse somatic and psychological consequences. Alcohol misuse has been linked to the perpetration of aggression, vulnerability for victimization, and other general negative behaviors.

The high rates of basic trainees' histories of abusive behaviors indicate that it may be cost-effective to establish treatment, education, and prevention programs at the trainee level. These programs would allow for the earliest, optimal resolution of behaviors that may interfere with the performance of their duties in the Navy. To ensure that trainees receive an accurate diagnosis and treatment of their complaints, medical department personnel should be trained to detect and understand abusive behavior, its symptoms, and its effects on somatic and mental health. The exceptionally high levels of female sexual victimization and male sexual aggression show an urgent need for the establishment of intervention programs for the prevention of sexual assault revictimization, the perpetration of sexual assault, and the abuse of alcohol at training commands.

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